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THE LARYNGOSCOPE

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DEVOTED TO DISEASES OF THE

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FOR GENERAL PRACTITIONERS AND SPECIALISTS.

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THE

LARYNGOSCOPE.

VOL. II. ST. LOUIS, MO., FEBRUARY, 1897. No. 2.

ORIGINAL COMMUNICATIONS.

HÆMATOMA OF THE NOSE.

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Judging by the slight notice which hæmatoma of the nasal septum receives in the various surgical manuals and in special volumes, it might, in the opinion of many, be classed as a rare affection. But, on closer consideration, it will be observed that as the nose is so frequently exposed to hard blows, and as the affection is nearly always traumatic in origin, it would seem likely to be of more frequent occurrence. Comparatively few cases, however, are found in literature.

Cloquet (*Journ. hebd. de Med.*, No. 91, T. vii., 1830) gives the first description of hæmatoma nasi; later it is mentioned by Velpeau (*Gaz. des Hopiteaux*, 1860), Mackenzie, Casabianca (*These de la Faculti de Paris*, 1872), Luc (*Bulletin de la Societié di Chir.*, 1875), etc.

Hæmatoma septi nasi occurs as the result of trauma directed to the dorsum nasi, accompanied by a tearing of the soft tissue, and bleeding between the cartilage quadrangularis and the perichondrium; the more profuse the bleeding the greater is the separation between the mucous membrane and the perichondrium. This area is distended with blood, and a broad-based, red, fluctuating tumor is formed, sometimes completely occluding the nasal canal; as the hæmorrhage frequently occurs simultaneously on both sides of the cartilaginous

septum, nasal respiration may be entirely shut off. In addition, the obstruction to normal respiration, thus formed, and the increased breadth of the septum, will cause the nose, in its outer form, to become broad, thick and swollen. If nasal respiration has been impeded from the first, the patient will present himself complaining of polypi, for very frequently the hæmatoma will develop completely without reaction.

Reabsorption of the hæmatoma is noted in Cases 1, 2, 3, 4, 8, 9, 11 and 13 of the series herewith reported. This reabsorption, without pain, is, apparently, the reason that this affection is so rare in practice, for as long as the nasal respiration is free, the patient will feel but little discomfort. The cure takes place either by absorption, or, if the tissues have become purulent, by spontaneous rupture, with the evacuation of a more or less purulent fluid.

Only one case of spontaneous absorption is found in the literature of the subject. Ball (Ref. by Fischenich, *Arch. für Laryng. u. Rhin.*, Vol. 2, 1894; *British Med. Journ.*, 1890) cites the case of a boy, seven years old, with a bilateral hæmatoma, which was reduced by rest and steam inhalation. However, the citation of only one case is no evidence that spontaneous absorption is a rarity, The objection may be raised that the absorption power of the mucous membrane is considerably retarded by the deposition of fibrin on the surfaces of the hæmatoma; this may, indeed, retard the absorption process, but not destroy this power, as the mucous membrane is richly supplied with blood-vessels which function as absorption agents.

The important role which trauma plays in the etiology of hæmatoma has already been remarked; the location and direction of the blow upon the nose should also be taken into consideration. If the lateral areas of the nose are injured, the elastic septal cartilage will serve as a rebounding cushion; if the blow is received on the dorsum of the nose, the result is different, owing to the structure of this portion of the nose. Zukerkandl (*Normale und Pathologische Anatomie der Nasenhöhle*, 1892, pp. 20 to 41) states that the articulation between the lamina perpendicularis ethmoid with the os nasi varies in extent. In 49 per cent. it extends to the middle of the dorsum; in 38 per cent. it advances further downwards; in 3 per cent. there is no connection between the lamina and the nasal bones, so that it is supported only by the spina nasalis. These anatomical variations are of importance in the consideration of injuries to the osseous part of the dorsum nasalis, for the further downward the articulation reaches the more protection will be afforded the cartilago quadrangularis. Besides, Zukerkandl has shown that even slight lesions of the nasal bones may

occasion bending, luxation or fracture of the cartilago quadrangularis; the thought then naturally suggests itself: Has the hæmatoma, which has all the etiological factors, arisen as a consequence of these alterations?

The force of the blow may extend over the entire lamina quadrangularis, and cause forcible contact with the lateral nasal walls, thus causing a tear of the web on the convex surface of the lamina quadrangularis, and the formation of a one-sided hæmatoma. It may not be thought possible that such a slight bending of the septum can be followed by a hemorrhage, but as the cartilaginous septum is somewhat pliable and elastic, even a strong bending just after the trauma will be partly straightened, thus making it difficult to decide whether the existing slight curvature is normal or pathological.

Strazza (*Ann. des mal. de l' Oreille*, etc., 1888) cites the case of a boy, 4 years of age, who received a blow on the nose; immediately following the injury a slight bleeding ensued; not until a fortnight later was the left nostril filled with a red, distended tumor; the passage was completely free on the right side; following incision, a serous, somewhat red fluid exuded.

In Fischenich's case, previously cited, a man of 28 years received a blow on the nose; the next day the left nostril was quite filled up, and after four weeks the right nostril also was filled up. By incision a serous, reddish fluid was evacuated; the septum was perforated in its anterior third; after eight days the perforation was closed, and patient discharged cured. This was a bilateral hæmatoma, but still primarily only one-sided; probably the pressure of the fluid on the denuded cartilage caused the perforation.

Whenever a perforation of the cartilaginous septum occurs in this class of cases it is always found in the anterior third; here the cartilage is very thin, and as it is readily bereft of its source of nutrition (mucous membrane), the power of resistance in this area is very slight.

Case 1 may also serve as an illustration of the development of a one-sided hæmatoma, the result of trauma.

Hæmatoma naris is, as a rule, bilateral. Hyrtl (*Topograph. Atlas*, Vienna, 1860) states that a fracture of the cart. quadr. has never been seen, but since Zukerkandl has been engaged in the researches of this subject, scarcely a week passes without his having an opportunity for observing at least one case.

M. Kaeppe (*De Hæmatom Cartil. Nasi.*, Halis, 1839; ref. by Zukerdandl) was the first to diagnose fracture with extravasation of blood coagula. At the same time Bockdalek observed a double fracture, accompanying fracture of the anterior part of the os nasi. We

are justified in the conclusion, based on Zukerkandl's observations, that the bilateral hæmatoma following such fracture is more frequent than is usually supposed; indeed, the fracture can involve any part of the cartilaginous septum; the longitudinal fracture is the most common form. The fracture line extends antero-posteriorly, so that an upper and lower fragment is formed; in transverse fracture the septum is divided into anterior and posterior fragments. If no displacement follows such fracture, it may even, with most careful inspection, and probing be easily overlooked; this is applicable to examinations made immediately after the injury; in three weeks after the injury the most careful investigation will rarely give us any information. This is probably the reason that more recent literature furnishes us with only two well-established cases. One by Ricei, (*Ann. des Mal. de l' Oreille*, etc., 1891) that of a man 28 years old, received a blow on nose; short time after both nostrils became impermeable; lancinating pain in septum; headache and fever; accompanying these symptoms a large swelling of the nose and adjacent parts developed; not until the evacuation of a large quantity of pus was a fracture of the cartilag. quadrang. determined.

A similar case is reported by Pean (*Revue Medicale Francaise*, 1896; ref. by Fishenich).

The third form of trauma, involving the septum, is the one followed by luxation; this always occurs between the vomer and the cartilaginous septum. the blow usually forces the cart. septum out of its plane; sometimes it becomes loosened at its upper attachment and overrides the vomer; occasionally the cart. sept. is pressed to the outer wall of the cavum nasi, thus completely blocking the passage. In these luxations a depression of the nose will be quickly formed, as the cartilaginous part of the dorsum nasi will partially collapse.

There is some difference of opinion as to the possibility of dislocation and fracture existing at the same time. Zukerkandl states that they almost always accompany each other; Daniel Moliere, on the contrary, in his series of experiments on cadavers, has shown (*Ann. des Mal. de l' Orielle*, etc., 1890; ref. by Gougenheim) that as a result of a slight trauma of the dorsum nasi the displacement of the cartilage is readjusted, and he has never observed a fracture concurrently. These results have been further verified by Chevallel in his thesis (*Traitement des Fractures du Nez par l' Apperiel Platre*, Lyons, 1889).

Gougenheim reports two cases, where luxation was suspected, but an absolute diagnosis was not made either in these, or any other reported cases. In the one case reported, a 3-year-old child had a fall; a short time after, a depression of the cartilaginous portion of the

dorsum nasi was noted, and at the same time a red, tense tumor developed on either side of the anterior area of the septum; this was incised, and a quantity of pus evacuated; neither perforation nor fracture could be found. In the other case, the etiology was indefinite; Gougenheim believes it to have been traumatic; here also the depression of the dorsum nasi was noted before the bilateral hæmatoma was opened; the septum appeared smooth, and no fracture could be found.

We have now demonstrated how trauma affects the septum, and the hæmatoma is produced, but that the hæmatoma can occur spontaneously, like the othæmatoma, there is no doubt, as the same conditions are present here as well as in the external ear.

Two such cases are reported by Mackenzie (*Diseases of the Throat and Nose*, Vol. I., p. 438); one by Luc (*Bull. de la Societe de Chir.*, 1895), and one by Péan (*Nélaton-Pathologie Chirurgicale*, Vol. 3, p. 740).

The contents of the hæmatoma may vary; most frequently a suppuration will follow shortly after the tumor develops, so that when the case is presented for treatment a more or less developed abscess may be found. This may mislead us in the diagnosis, but the history of the case and the traumatic etiology confirms these conclusions of hæmatoma.

In all the cases collected the fluid evacuated was either clear pus, spontaneously discharged, as in cases 3 and 12, or exuded after incision; or sero-pus, as in cases 7 and 9.

The healing of the hæmatoma by reabsorption has already been referred to; another issue in these conditions is the formation of cysts; the extravasated, blood-colored contents gradually assumes a distinctly serous character. Strazza's case would more nearly resemble this form, rather than that of perichondritis, as, two weeks following the trauma, there was an evacuation of serous, lightly-reddish fluid.

Hæmatoma is, as a rule, bilateral, symmetrically placed on either side of the anterior area of the septum; as the cartilage is very thin in this area, and the mucous membrane loose and delicate, the resistance offered to the pressure of the tumor is slight, and a perforation of the septum at this point is easily produced.

Jurasz (*Die Krankheiten der Oberen Luftwege*, 1891) is of the opinion that this necrosis occurs very quickly; that several hours after the trauma suffice; but of his own six cases there are two where respectively four days and six weeks have passed without any perforation having arisen.

In the following series of cases reported, incision was made in

eight, and only one case (No. 9) was found with perforation; in all of these cases, bilateral, symmetrically-situated hæmatomae occurred. The best opportunities were here presented for perforation to occur.

Following perforation, the two tumors gradually coalesce, and we should be able to make the diagnosis of perforation before the incision.

Mackenzie asserts that a perforation formed as the result of hæmatoma will be permanent; yet this assertion he endeavors to prove by only one case (M. Thorner, Hæmatoma of the Septum narium, *Medical News*, 1889).

In Jurasz's four cases and in Fishenich's case, the perforations were closed in the course of three weeks. The perforation is said to occasionally give rise to a deformity of the nose. In case 7 note the collapse of the cartilaginous septum nasi. Jurasz cites the following case: Male, æt. 23 years, received a blow on the nose; incision of the hæmatoma was made five weeks later; a considerable necrosis of the cartilaginous septum and collapse of the dorsum nosi was found; ten days later the perforation had healed, the septum appeared completely normal, excepting some slight curvature.

Zaufal (*Revue Mensuelle de laryng.*, etc., 1893) also cites a similar case of perforation and accompanying collapse of dorsum nasi, followed by healing of perforation and restoration of the parts to normal shape.

It is not indicated, therefore, that every perforation must necessarily be followed by deformity; it depends, to some extent, on the size of the perforation. If the perforation is surrounded by a ring of cartilage, there will naturally be no collapse of the adjacent parts; occasionally we find perforations of the cartilaginous septum, the result of syphilis, tuberculosis, abscess, etc., where the outer form of the nose is perfectly preserved. If, however, the perforation is large, and the ring of cartilage incomplete superiorly or inferiorly, a collapse and deformity of the nasal bridge will easily occur.

The diagnosis may offer some difficulties; but if the history of the case is good; if there has been a trauma, followed by a more or less profuse hæmorrhage; if, later, the patient notices that the nose grows broader, and the nasal respiration eventually is shut off, this series of symptoms points to hæmatoma. The development of the broad-based, red, fluctuating tumor, located on either side of the cartilaginous septum, and filling the apertura nasium, is often free of pain. If there is still some doubt as to the nature of the tumor—whether abscess, hæmatoma, or cyst—an exploratory puncture will decide. This test puncture, however, is only serviceable in the early stages of the tumor development, for later a differential diagnosis is, so to say, impossible, as the

contents of the hæmatoma may easily change to a purulent or, in rare cases, to a serous character. The treatment consists in immediately opening the hæmatoma with a large linear incision to evacuate the contents, and avoid necrosis and perforation. If it is a bilateral hæmatoma, both sides should be incised. Sometimes a simple evacuation is sufficient; but if an abscess has formed, a thorough irrigation, with antiseptic solution and tamponnage of iodoform gauze, is urged; only very rarely are we forced to the radical measure, as recommended by Schäffer (*Therapeut Monatschr.*, 1890), of excising an elliptical piece of the mucous membrane.

I take the liberty of adding the following cases to the literature of this subject:

Case 1. (*The Polyklinik*, 1891).—Thorwald R., æt. 27 years, received blow on nose; followed by severe hæmorrhage; several recurrences of bleeding; outer appearance of nose broad and sore; left side of cartilaginous septum swollen and fluctuating; mucous membrane dry and scaly; left naris partially occluded.

Case 2. (*The Polyklinik*, 1891.)—Richard N., æt. 7 years, received blow on nose; complained of difficulty of nasal respiration; both nostrils filled with dark-red, tense, broad-based tumors, extending to the apertura narium. Incision made; pus evacuated, tamponnage with iodoform gauze.

Case 3. (*The Polyklinik*, 1891).—Hans H., æt. 4 years, received blow on the nose; 8 days later complained of difficulty in nasal respiration; septum swollen; right naris filled with pus; this being cleared, the posterior area of the cartilaginous septum was found much infiltrated, and pus oozing from a single point. Warm douche.

Case 4. (*The Polyklinik*, 1891).—Ludwig S., æt. 64 years, fell and struck his nose. In a fortnight redness and swelling of the nose, with difficulty in nasal respiration, was noted; septum much swollen in breadth; two broad-based, red, tense and fluctuating tumors, located on either side, and projecting from the cartilago quadrangularis and filling both nostrils. There was not only swelling of the nose, but also œdema of the cheek and eyelids. Incision, with evacuation of large quantity of pus. The fourth day after the incision, the pus had all been discharged; soreness and swelling had disappeared.

Case 5. (*The Polyklinik*, 1892).—Carl F., æt. 18 years, received trauma on the nose; two days later the nose swelled up; occasional nasal hæmorrhage; there was febrile reaction, with sweating, temperature and quick pulse; nose red and intensely swollen; nasal respiration completely obstructed; the anterior area of the cart. septum was the seat of two symmetrical, hard, tense, and red tumors; incision

with evacuation of pus; after the lapse of one week the infiltration of the septum had almost passed away.

CASE 6. (*The Polyklinik*, 1892).—Meta H., æt. 26 years, received blow on nose; eight days later had several prolonged chills; nasal respiration was obstructed; on both sides of cartilaginous septum broad-based, red, tense, fluctuating tumors were seen; incision and evacuation of much pus from both sides.

CASE 7. (*The Polyklinik*).—Carl V., æt. 14 years, fell and struck his nose; nasal respiration almost abolished; intense pain, and several sleepless nights; patient had fever, and was confined to bed; nose almost closed by soft, elastic, symmetrical tumors, attached to cart. septum, and covered with natural mucous membrane; interior area of nose increased in breadth; otherwise no deformity observed; incision, with escape of a partly serous, partly purulent fluid; probing reveals presence of a perforation of the septum; tampon by iodoform gauze; 9 days later the swelling had disappeared; saddle-nose deformity seems probable.

CASE 8. (*Dr. Schmiegelow's Private Clinic*, 1894).—Miss H. V., 18 years; while riding, was struck by a thick branch across the nose; the blow was severe and painful; no hæmorrhage; during several succeeding days, nasal respiration was clear; nose soon filled up completely; tension over nasal dorsum; nasal intonation while speaking; at juncture of cartilaginous with bony septum, an infiltration and swelling was seen and felt; tender on pressure; nasal respiration at this stage was abolished; no indication of fracture at the root of the nose; later the nose was filled by broad-based, symmetric tumors, covered by dark-red, swollen mucous membrane; tense, elastic fluctuation was noted; both tumors were incised, and considerable thick pus was evacuated; the cartilaginous septum was denuded on both sides; the abscess cavities were thoroughly tamponed with iodoform gauze, renewed daily; three weeks after the abscesses had been incised septum was normal, and no nasal deformity.

CASE 9. (*The Kommune Hospital*, 1887).— ——, male, æt. 19 years, was struck a blow on the nose by a clenched fist; immediately followed by severe epistaxis; three days later patient noticed that both nostrils were filled up, and the nose became broader; on each side of septum, protruding from the apertura nasi, were tumors the size of a nut, irregular in surface, reddish, and somewhat elastic to the touch; on incision, a rather thick tumor wall was encountered, and sero-purulent contents on each side of the septum; several days after incision and evacuation hæmatoma had again filled; extensive galvano-cautery puncture was made, resulting in a cure.

CASE 10. (*The Kommune Hospital*, 1889).—Jens N., æt. 21 years, fell on the ice and struck his face; in trying to rise, he fell again, striking on the occiput; he was not unconscious; was confined to his bed; restless, pupils unequal, slight pulse; temperature 38.9° C., with fall and rise at one time to 41° C.; rhinoscopic examination reveals diffuse, bright-red mucous membrane, partly covered with flaky, purulent excretion; the cartilaginous septum considerably swollen, so that both sides of nose were almost closed, and thus examination of the deeper structure was impossible.

CASE 11. (*The Kommune Hospital*, 1888).—Peter T., æt. 15 years; lower area of nose was suddenly swollen, without apparent cause; red and sore; only scanty air-passage, and very limited nasal respiration; exterior of nose thick and swollen; septum considerably swollen, and fluctuating tumors on both sides; both nostrils are filled with abundant inspisated mucous. Rinsing with salt water.

CASE 12. (*The Kommune Hospital*).—Richard N., æt. 7 years, received a blow on the nose; in the following two weeks a perichondritis sept. nasi developed; patient being anæsthetised with ethyl-bromide; considerable pus was evacuated; occasional pain was complained of; the nasal air-passage was completely occluded; two days after first incision another was made on both sides of septum, and quantity of pus exuded; three days later the abscess had been emptied; septum then resumed normal size and condition.

CASE 13. (*The Kommune Hospital*, 1892).—Pernille P., æt. 37 years, received blow on nose; later large bilateral tumors developed on anterior septal area; dorsum nasi much thickened; there was spontaneous perforation of the septum, with discharge of pus from left side of nose. Warm douche.

Of the cases reported, five, of the Kommune hospital, occurred in the last eight years; seven, of the Polyklinik, in the last six years—in all, trauma was the cause, except in case 11; trauma was sometimes accompanied by hæmorrhage (cases 1 and 9), or the bleeding appeared at later stages of the development of the hæmatoma (cases 1 and 5); development of the tumor without pain occurred in eight cases; in the eleven cases in which a complete diagnosis was possible, the result was an abscess-formation with sero-purulent (cases 7 and 9), or clear pus contents; eight cases required incision; in three there was spontaneous perforation; with one exception (case 1) the hæmatoma was bilateral, symmetrically located on either side of the cartilago quadrangularis; perforation of the septum was seen only in case 7; in cases 7 and 12 there followed deformity of the dorsum nasi.

The question may be raised: Are these reported cases examples of

true hæmatoma? Pus or sero-purulent fluid, and not blood, was evacuated; hæmatoma in which there is an exudation of blood or liquor sanguinis, is very rare; Fishenich mentions one case in which there was an evacuation of fluid blood from the tumor three days after the trauma; hæmatoma rarely comes under observation and treatment in the initial stages of its development, but usually after the lapse of eight to fourteen days, and then the contents have had opportunity of undergoing purulent change.

Another point worthy of consideration is that when hæmorrhage occurs primarily, there is a distension of the blood-sac covered by mucous membrane, which prevents nasal respiration, and in the cases reported this usually occurred within one week after the trauma. If there is suppuration, with accompanying œdema, the perichondrium will be swollen, more pliable, so that it may be easily separated from the cartilage; the mucous membrane will also participate in this inflammatory reaction, and nasal respiration will be occluded.

THE PURULENT NASAL CATARRH OF ADOLESCENTS.

BY J. C. MULHALL, M.D., ST. LOUIS, MO.

In looking over my case books, I have found notes of cases whose symptoms correspond so closely that they perhaps merit the distinction of a title to themselves, and I will beg the liberty of suggesting the above, since the two most striking features are a chronic bilateral discharge of pus, occurring shortly after the advent of puberty.

I have records of eleven cases—nine of whom were females and two males; an explanation of which is readily afforded when one contemplates the etiology—which I may briefly describe to consist in excessive mental work, plus insufficient bodily exercise, about the period of puberty. This function is a vastly more trying ordeal to the girl than to the boy. The physical education of the two has been, as a rule, enormously in favor of the boy. He, in unrestrained clothing, romps his way to manhood; she, with her trammeling skirts, most probably with high-heeled shoes and a corset, minces her way to womanhood. Her physical resistance will not compare with his, and yet, at corresponding ages, she, by natural inclination and special urging, is further advanced in her books than he. In addition, the boy usually escapes what she seldom does, the study of the piano. Seven out of the nine girls practiced at the piano from one to three hours per day—time employed by the boy in acquiring health by playing some game in the open air of the back yard. With menstruation comes more physical decorum; less desire to run and play. Puberty in the boy does not lessen his desire for out-of-door sports.

In most people an ordinary cold in the head has four stages—turgescence with dryness, then limpid secretion, then white viscid secretion, and lastly yellow discharge. Their duration varies according to many different factors, local or constitutional, but recovery usually ensues without treatment. Now, in the class of cases of which I write, *the indefinite prolongation of the last stage* occurs from constitutional debility, produced by the causes mentioned. This is the simple explanation. It has nothing to do with diathesis, with intra-nasal deformity, nor accessory sinus disease. The scrofulous diathesis may, of course, be an aggravating factor, and a deformed septum compli-

cates the evil; but it is not necessary to consider either on the etiology or cure of the disorder. Both may be very important factors in the tendency of the adolescent to taking the cold, but the causes I have mentioned are the ones to be considered in explaining and curing the prolonged suppuration. This may last many months. Should this cold have been taken shortly before the annual vacation, the relief from study, from badly-ventilated school-room, the trip to the seaside or country (nearly all my cases have occurred in the wealthier classes), will cause the suppuration to cease. Should, however, the cold have been taken at the middle of the school term, the suppuration may continue until the end of the term, and even through the vacation, unless more radical measures are adopted than mere relief from study and the adoption of open-air life.

In most of my cases menstruation has been irregular, or ceased altogether, and anæmia has been pronounced. There has been lassitude, mental and physical, headache, constipation, loss of appetite, depression of spirits, occasional fever, symptoms referable to the original debility, plus the recurrence of prolonged nasal suppuration; this fever is septic, for when we come to examine the nose we find that drainage may be much interfered with by the swollen inferior turbinates, so much so that the patient is unable to blow out the pus. In addition, much of it is swallowed during the night, interfering with morning appetite. The nose is commonly completely closed in the recumbent position, mouth breathing is compulsory, and the patient awakes with dry, coated tongue, nauseated, unrefreshed. In this condition she forces down the cup of coffee, and unfed, unslept, ptomaine-bound, she goes to the heavy air of the school-room and begins the daily grind.

These swollen inferior turbinates, even after cleansing and cocainization, may touch the septum, but the apparent hypertrophy is spurious, the motor-activity of the erectile tissue is gone; there exists a vaso-motor paralysis. I have known of cases where surgical means have been adopted against this apparent hypertrophy, manifestly unscientific, and but adding to the misery of the patient. The color of the membrane is not uniform; we find red, pale rose and white patches. The middle turbinates are also sodden, obliterating the olfactory fissure, and sometimes the hiatus semilunaris, but in no case have I found infection of an accessory sinus, though it is easy to understand how easily this might occur. In two subjects I found on the hiatus very small budding polypi, which disappeared without surgical attack. Partial or complete anosmia existed in all cases.

Intra-nasal treatment may be summed up in one word—cleanliness.

This cannot be accomplished with a spray—a method of cleansing the nose I have long ceased to adopt in any class of cases. The patient should be provided with a rubber bulb, attached to which is rubber tubing one-fourth of an inch in diameter; the same precautions are observed as in using a nasal douche. The detergent is one which I use in all nasal diseases requiring such, namely one part each of bicarbonate of soda and borax, and four parts of salt. The patient should wash out the nose three times daily, or as demanded. The addition of an antiseptic is of no value. Indeed, I know of no disease of the nasal mucosa proper where I have found antiseptics of any use, not excepting syphilis or atrophic catarrh.

The real treatment is constitutional, and without it no improvement will be manifest; above all the patient must be taken away from her books and piano, absolutely. Careful selection of diet, cold water frictions, deep breathing, gentle open air walking, twelve hours each day in bed in a sunny, well-ventilated room, abdominal massage, gentle Sweedish movements to the joints, a daily evacuation of the bowels, Blaud's pill or Gudes' Pepto-Mangan, compose the measures which, when well adapted to each case, skillfully and faithfully performed, I have found to bring rapid improvement and eventual cure—an event which, in my experience, has occurred within from four to eight weeks. I may add that the use of strychnia and of the faradic current, one pole at the occiput, the other over the nose and cervical sympathetic, have been of signal benefit. I have often seen the turgescent turbinate tissue undergo considerable diminution of volume after five minutes' use of galvanism thus employed, so that lavage could be easily accomplished.

The details of hydrotherapy, of massage, of deep breathing, of Sweedish movements, of the rest cure, of the exercise cure, should be just as familiar to those engaged in nose and throat work as they presumably are to the general practitioner, and I shall not, therefore, here presume to describe the methods used on this particular class of cases.

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THE RELATION OF AFFECTIONS OF THE UPPER AIR PASSAGES TO DISEASES OF THE EAR.*

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Are we doing all possible for the prevention and relief of ear troubles?

In the preparation of this article I have looked through a great deal of literature, and have been surprised to find that while most authors agree in saying middle-ear affections are caused by an extension from the naso-pharynx, very little is said about the now recognized fact that post-nasal catarrh is almost entirely due to an abnormality of the anterior nares. Very few of the older authorities say anything, or but little, about the affections of the nasal, post-nasal or oro-pharynx in regard to the ear; and until within very recent years our information upon the subject has been meager indeed; but now modern writers are investigating and placing the facts before the profession, and we are thus enabled to deal with this important organ in a more scientific way than even five years ago. I am amazed, however, to observe how few of the old and wonderful searchers after truth, and ready writers, should hardly touch upon any of the accessory cavities to the naso-pharynx, whereas many of the younger men have gone into the matter in a thorough and lucid manner. In the recent works of Gruber and Politzer considerable light is thrown out, but still chiefly in reference to the rhino-pharynx.

Since the able article, about twenty-three years ago, by Meyer, of Copenhagen, who was the first to give to the medical world an exhaustive opinion upon adenoids in the naso-pharynx and their results, it appears to me that nearly all information pertaining thereto has been elucidated. Still there is ever room for further thought and research. I remember that during my long residence in Vienna and other European cities, studying under Politzer, Gruber, Urbantschitsch, Bing, Hartmann and others, and in this country as well, but scant attention was given to the nose or naso-pharynx, they taking care of

*Read before the N. Y. State Medical Association, held in the Mott Memorial Hall, N. Y. City, October, 1896.

themselves, while almost exclusive attention was given directly to the ear. The results have shown what a sad and, in many cases, complete failure such treatment has proven, but now the older men are falling into line, and our results are far superior to former ones.

At all ages, and in all cases of deafness or other ear affections that come under my care, I examine most carefully the nose, naso-pharynx, oro-pharynx and ears, and only on such scrutiny can we base our conclusions and prognosis.

Beginning with the nose we may find septal spurs, deflected septum, and hypertrophies of the inferior and middle turbinated bodies, causing partial or almost complete stenosis of the nasal passages, with little or no pharyngeal complication; and yet deafness often prevails—why is it?

On looking into the anterior nares we may find the inferior turbinates so large as to wholly occlude them and prevent further inspection. This hyperplasia is caused by venous engorgement of the tissues covering the turbinated bodies, and is undoubtedly brought about by frequent attacks of acute rhinitis, caused, in a measure, by irritants, as septal spurs, deviated septum, etc. At first the mucous membrane returns to its normal condition, but the repetition of these attacks will eventually end in a fibrous tissue remaining permanently hypertrophied. Patients so affected complain of frequent colds in the head, difficulty in breathing, asthma and frequently impaired hearing during such stenosis, becoming gradually more and more so and increasing with repeated attacks, and remaining permanent if the nares become more or less constantly occluded. Even if the nose is successfully treated, and free respiration restored, and parts physiologically normal, the hearing may not be improved if of long standing. Still, there are many exceptions. The ear troubles so caused are chiefly catarrh of the middle ear; but, of course, there are very many other forms of ear disease caused by the nasal occlusion. We often find interference with ventilation through the Eustachian tube, but in many such cases their patency is normal; yet, there is deafness, and, according to Dench and others, is produced by the turgescence of the turbinated bodies interfering with the venous return current from the labyrinth, causing labyrinthine congestion. We know that this is purely theoretical, and still no more plausible view has been advanced. Somewhat proving this is the fact that intranasal surgery often improves hearing, tinnitus, etc., in all conditions affected by the nasal passages.

Another serious condition of the nose affecting the ears is atrophic rhinitis and naso-pharyngeal catarrh—a disease of early life rarely

existing under five years of age, and becoming worse as the patient grows older. There is a diversity of opinion among the best authorities as to its cause, and I will not discuss it here. Around the orifices of the Eustachian tube, we often find a residue acting as an irritant and setting up frequent inflammations, which finally end in a narrowing of the tube and rarefaction of the air in the middle ear, or, on the other hand, the tube may be too open, and in time cause a flacidity of the tympanic membrane, etc. Hypertrophy of lingual and faucial tonsils, elongated uvula and adenoids, are all responsible for much of the trouble cited above, and have been copiously written about by nearly all authors on the ear. The pharyngeal tonsil is formed of adenoid tissue, and not only becomes frequently enlarged through chronic inflammation of the parts, but by the formation of new adenoid tissue the whole choanæ and vault may become completely filled, pressing into the nares, Eustachian tubes and pushing the soft palate forward. They are rarely found on the protuberances around the Eustachian tubes or on the side walls of the pharynx.

There seems, in most cases, a connection between adenoids and enlarged faucial tonsils, and, occasionally, even the adenoid tissue at base of tongue. Sajous states that there may be quite extensive adenoid vegetations without the Eustachian tubes being involved; but, in my opinion, in every case of adenoids the tubes are more or less implicated. In this connection, the tissues of the vault often become œdematous, which probably extends into the Eustachian tubes, causing aural disturbances. Sometimes extensive adhesions between adenoids and Eustachian tubes are found, presumably caused by the frequent inflammatory action of the pharynx, in acute coryzas, pharyngitis, etc. In my opinion, every child at a very early age should be carefully examined for adenoids, and, if found, at once removed, and thereby much needless suffering would be saved to humanity. They act upon the ear in different ways, the principal one being the blocking up of the Eustachian orifices, causing rarefaction of the air in the middle ear, which will eventually result in a retraction of the membrana tympani. A chronic congestion and hyper-secretion, if long continued, will end in adhesions and ankylosis of the ossicles, and deafness and tinnitus.

It is a mooted question whether the adenoids press on the pharyngeal openings of the tubes, or if their interference to the muscles of deglutition causes the trouble by producing an incomplete opening of the tubes. In either case we know that in diphtheria, measles, scarlet fever, whooping-cough, mumps, teething, tuberculosis, typhoid, etc., the septic secretions are thrown into the middle ear, and, by their

retention, the destructive process begins. To whatever cause nasal or pharyngeal stenosis may be due, drainage of these parts is interfered with, and hence the middle ear difficulties. Blowing the nose forcibly in nasal obstruction is liable to force secretions into the ear.

A few years ago, while sojourning in Greece, I called upon several of the leading physicians of different cities for the purpose of investigating nasal and pharyngeal diseases, and, to my surprise, found that such affections are almost unknown, and, as a consequence, but little ear disease prevails. I am fully convinced that if there were no abnormality of the upper air tract we would have but little ear disturbance. I shall not burden you with statistics, but merely cite a few illustrative cases.

Case I.—November 30, 1893, Fred. W., aged 31, consulted me for relief of nasal catarrh. He is a strong and fully developed man, active in business and brilliant, socially. Inspection showed great hypertrophy of both inferior and middle turbinates, sept-spur, slight rhino-pharyngitis and elongated uvula. Incidentally, in eliciting the history, I found that he had had scarlet fever and diphtheria in early childhood, and since discharge from both ears, and he stated that now his hearing is very imperfect, with loud roaring in head. When I suggested treatment, he said that he did not come to me for that, but his nose and throat; that he had been in the hands of several good men for his ears, but with no relief.

I find that both tympani are intact, but greatly retracted, the left mostly with short processes very prominent. Bone conduction with tuning-fork better in left than in A. C., and the reverse in right. Hearing distance with watch: right 18—40, left 1—40. I treated his nose, removing spurs, reducing turbinates and excised uvula.

On April 7, 1894, discharged him in fairly good condition, and much to my surprise his hearing wonderfully improved, although I had in no way done anything directly to his ears. April 7: H. D. W. R. 38—40, L. 19—40.

Case II.—September 14th, 1895, Mr. John H., age 22, student in mechanical engineering, consulted me in regard to deafness and noises in the head, difficulty in breathing through nose. Has had impaired hearing since about ten years old. Has had the ordinary diseases of childhood, could not trace any connection between them and his deafness. Tympani greatly retracted, and hearing distance with watch in right ear 1—40, left 6—40. Is not robust. When about ten years of age was hit forcibly on nose with base-ball, crushing the bridge of the nose, flattening it down considerably. On inspection of the inner part of that organ I found the bony septum fractured, one portion

pressing to the right and the other to the left, causing almost complete stenosis. I concluded that the only thing to do was to break it (the septum) up and put it in its normal position. Consequently, on September 24th, with the assistance of two physicians, he was anæsthetized, and by Roe's and other methods the septum was brought into proper position, and supported on each side. By the operation the nasal bridge was appreciably elevated and made a much more æsthetic nose than the young man formerly possessed. He soon recovered from the operation, and as soon as the dressing could be left out of the nose, hearing was found to improve rapidly, and by December 1, 1895, H. D. R. watch was 21—40, L. 5—40, and up to this time I had not touched the ears. He now returned to college in a distant city, and thus passed out of my hands, and I did not see him again until about the middle of June this year, when his hearing R. is 38—40, L. 14—40. I again took him in charge, removing some septal ledges and directed attention to the ears, further increasing the hearing power.

Case III.—December 20th, 1895, Charles B., 9 years of age, referred to me by family physician on account of deafness. Examination shows much turgescence of turbinated bodies, causing considerable occlusion of nares. Vault almost completely filled with adenoids. Takes cold easily and has frequent coryzas. General condition bad. Is a decided mouth breather.

Hearing distance: Right ear, with watch, 10—40; left, 1—30.

Performed adenotomy, and there was immediate improvement in hearing and subsidence of the turgescent turbinates. On July 1st of this year he could hear my testing watch at 60 inches in both ears, which is 20 inches more than I usually register. The lad had no other treatment, except acting on my advice to be out in the cold bracing atmosphere as much as possibible. His colds disappeared as if by magic.

Case IV.—John R., sent in by family physician; 10 years old; has O. M. purulenta in both ears; very offensive; perforations in lower third. Ossicles in normal position; H. D. R. (watch) C—40; L. C—40. Pharyngeal vault filled with adenoids; adenotomy and tonsillotomy. In six weeks discharge has completely stopped, and has not returned. Hearing in both ears now 30—40.

Case V.—Annie S., 7 years old, came to me through the family physician. Found an extremely purulent discharge from left nostril, and with occlusion of both; also O. M. purulenta, right and left. The discharge from nose had existed since she was two years old. Had never had any of the diseases of childhood. Symptoms indicated extensive adenoids, but examination revealed a normal oro-pharynx and

no adenoids, and only a slight naso-pharyngitis. The child was so sensitive that it was almost impossible to determine anything, but the sound struck something that appeared like necrosed bone. A few days later anæsthetized and removed a large, rough, serrated shoe-button. The sound passing over the uneven surface is what deceived me in thinking it might be necrosis. The button had shoved the septum over to the right. I straightened it with Adams' forceps. In a very short time she was in excellent physical condition; nose well; discharge from ears had ceased; hearing good; but small perforation in tympani.

215 Jefferson Avenue.

THE IMPORTANCE OF URINALYSIS TO THE LARYNGOLOGIST.

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I.

With the laryngologist urinalysis is not a matter of routine. His practice has to do mainly with consultations and operations. The cases having been referred to him, the specialist presumes (because usually he is the court of last appeal) that all necessary examinations have been made. He is asked to look at the case from his point of view, for the reason that his knowledge being finely specialized he is better able to trace a connection between effect and cause in certain phenomena as manifested within his domain.

Can it be said, then, that urinary examinations *are* of value to the laryngologist? In some conditions urinalysis will give no help in regard to the local lesion within the nose or throat. It would be of no value in syphilis or tuberculosis or tumors of the upper respiratory tract. But in some other conditions it would be of very great service toward settling an etiology, and hence the treatment. Certain conditions within the nose and throat are manifestations of a primary systemic disarrangement; other manifestations, again, are secondary to disturbance within some special internal organ. In the following classes of cases urinalysis is always of value: those in whom rheumatism is suspected; where there is frequent nose-bleed; always in obscure cough; in profuse catarrh of nose or throat; where the individual is subject to frequent "colds;" in hay-fever; and in children presenting enlarged tonsils and nasal occlusion. It is my practice in the above cases to always make an examination of the urine. In some obstinate and obscure cases the blood is also examined.

Urinalysis is of great importance to the laryngologist. It is, in fact, of great importance to any specialist; for the specialist must be guided by the rule, applicable as well to him as to any medical man, that whatever is for his patient's good *must* be done. And although the specialist is often merely a consultant and operator, he finds that

no urinalysis has been made in the case presented. He therefore is bound to make such analysis that a perfect understanding of the patient and of the condition may be had. No surgeon would operate without first having made an urinalysis. This procedure is equally important in most of the operative procedures of the laryngologist.

It is obvious then that urinalysis *is* important. Let me emphasize that importance by quoting a number of cases.

II.

Case A.—Woman, aged 40 years. Referred for examination because of following history: Has almost constant nasal occlusion, especially at night; sleep much disturbed by bad dreams; awakens suddenly with attacks of "strangling;" not much discharge from nose or throat. Intranasal examination reveals the erectile tissue of both sides as very greatly relaxed, almost filling nares; the tissues showing a heavy, "waterlogged" appearance. Inspection of the pharynx shows soft palate, uvula and pillars much thickened and anæmic, with the same heavy appearance. At first glance I thought the patient was rheumatic, and had had perhaps a recent attack. Upon close questionining she denied all history of rheumatism. I then suggested an urinalysis. This she said had been made a number of times by the physician who had sent her to me. Upon communicating with him the urine was reported as all right. Having covered all points, as I then thought, cauterization of the turbinates was advised. Both inferior turbinates were accordingly cauterized with the platinum points, a proper interval being allowed between cauterizations. After the last operation the patient disappeared for two months, although she had been told to report in a few days. When asked the reason of the delay, the reply was: "I have been in bed with an attack of rheumatism." I believe now that a proper urinalysis had not been made in her case, or else it had been made too early to be of value at the time she came to me. I believe that had a proper examination been made the rheumatism might have been averted, and the œdema of the soft tissues of the nose and throat cleared by proper attention to the kidneys.

Case B.—Man, aged 60 years. A hard drinker; had been drinking heavily just previous to time seen. No urinalysis made, but urine was noted as being scanty, very highly colored, with a "brick-dust" deposit on standing. The soft tissues of the man's nose and throat presented much the same appearance as those in Case A, with the difference that here the membranes had decided color, and there was soreness of the throat. Treatment given consisted of calomel and a

diuretic. Under this the urine became normal in a few days, and as the urine cleared the throat became normal also.

Case C. — Woman, aged 35 years. Referred for treatment for cough. Sleep is disturbed by coughing, with at times an asthmatic condition; and there is nasal occlusion at same time. During past year patient has been under severe physical and mental strain. The intra-nasal tissues present a "heavy," sodden appearance. Urinalysis shows: small quantity, highly acid, with uric acid largely in excess. Treatment was given as indicated by this showing, with, in addition, an inhalation for the throat. A few days later patient reported as being able to sleep without disturbance from cough or asthma. Since then she has been put in care of a masseuse, and has had massage and vapor baths. There has been no return of the cough or asthmatic attacks.

In the foregoing cases I believe that the conditions within the nose and throat were visible manifestations of an abnormal state of the circulation dependent upon some fault in the internal nutritive processes. In the third the urinalysis gave a hint as to what the disturbance might be. Therefore, having an idea as to the cause, the conduct of the case was clear, and treatment became scientific. In the two other cases, not having made an urinalysis, the results were less sure.

Case D.—Man, aged 55 years. Referred because of recurring epistaxis. Has had frequent nose-bleed during a period of years; lately attacks frequent and bleeding profuse. Has had obstinate watery diarrhœa for some time. Is under treatment for kidney insufficiency. Urinalysis shows: quantity reduced, hyperacid, urea low. Intranasal examination showed in this case a minute blood crust upon right triangular cartilage at about middle of line of maxillary articulation, with injected vessels showing over surface of cartilage. Upon disturbing crust a profuse hemorrhage ensued, which was controlled with difficulty. The spot was afterward cauterized; and the kidneys having regained their normal function, there was no more nose-bleed experienced.

Case E.—Is similar to Case D in local manifestations. There were frequent nose-bleeds, and examination showed blood-vessels of surface of cartilage injected, with bleeding-point at about center of surface. In this the urine was the same, with, in addition, a trace of albumen. Here, too, cauterization and proper attention to kidneys stopped the attacks of epistaxis.

Cases similar to Cases D and E are seen fairly often. No explanation of the phenomena will be attempted here. It is possibly a mere coincidence. But the nose-bleed is found associated with renal insufficiency so often that it would seem there must be some connection.

CASE F.—Youth, aged 19 years. Takes "cold" easily, and does not recover quickly. Is in college, and is a hard worker, studying until late at night. Is home from college now, feeling "played out" and with a severe coryza. Urinalysis: slightly acid, quantity lessened, specific gravity very low, traces of albumen, urea low, He was put upon treatment aimed at correcting the insufficiency, as was shown by repeated urinalyses, with the result that the coryza was relieved at once, and after a time his general condition became all right. Early in the summer he returned, saying he had started his annual attack of hay-fever. There was nasal occlusion, free watery nasal discharge and frequent sneezing. This condition he said started each summer early and lasted till fall. Upon questioning, it was found that he had been doing in-door work that was distasteful to him, besides studying late into the night. Urinalysis showed a return to his former condition. He was advised to stop work, to go into the country and rest, and was put upon his former treatment. He did stop work, but stayed at home in the city. After pursuing treatment for a few days the "hay-fever" was much relieved, and after ten days or two weeks vanished.

It is very probable that something may be taught toward the treatment of hay-fever by urinalysis. The above case I do not consider as hay-fever, but the intranasal demonstration was very like that of hay-fever. I recall another case, one of typical hay-fever, in which an urinalysis was made. The urine was simply loaded. Its specific gravity was 1.036, highly acid; very strong indican reaction; and with phosphates, chlorides, uric acid and calcium oxalate increased. This case gave up treatment at a critical point. Therefore there is no result to report. But I believe that if taken in time these cases may be cured of the hay-fever habit if they be treated according to the urinary findings, in addition to proper intra-nasal procedures.

CASE G.—Girl, aged 17 years, with very profuse discharge from pharyngeal vault; also some from nose and ears. Skin is very muddy, and there is some eczema of face. Feels weak and tired. Urinalysis shows normal acidity; low specific gravity, with marked indican reaction. There was marked constipation. Thinking there might be some connection between the presence of the profuse discharge in the pharynx and the indican in the urine, treatment was given solely for the regular and complete clearing of the intestine. Within a short time all secretion within nose, throat and ears had completely disappeared, without any local attention whatever, except in the ears.

This case is one of auto-intoxication, intestinal in origin. It exhibits the relationship between decomposition within the gut and pharyn-

geal catarrh. That is, in catarrh depending upon this condition alone; not all catarrhs. In this the secretion is peculiar; quite different from that in ordinary catarrh of the pharynx. It cannot be described, but must be seen to be appreciated.

CASE H.—Man, aged 23 years. Subject to frequent "colds;" once started hard to cure; is "nervous," and a hard student, studying nights in addition to day's work. Examination of nose and throat shows some relaxation of soft tissues. Urinalysis: three quarts in twenty-four hours; 1.036; highly acid; a suspicion of sugar. Repeated examinations show same condition. Under suitable treatment urine cleared. Not the slightest sugar reaction; specific gravity 1.027. Feels better; does not take cold so easily, and cold is easily broken up.

In the individual subject to frequent "colds" there will be found always some fault in the body functions; and that fault will usually be shown in the urine. Sugar will not be found in every case, nor even a hint of sugar. More often it will be found that the person carries a diathesis of some sort which lowers his power of resistance and makes him susceptible to "colds."

CASE I.—Man, aged 35 years. Comes in saying he has just had a severe attack of antral disease of left side. There has been profuse catarrh of vault and discharge from nose, with severe headache and pain under left eye. Feels now decidedly dull and stupid. There is still nasal discharges, with occlusion. Is slightly deaf, which has been growing worse during this attack. Urinalysis shows: small amount; very acid; specific gravity low; indican strongly marked; calcium oxalate crystals in abundance. Inquiry reveals that several years ago he had an attack of cystitis and urethritis, very acute and entirely innocent in origin, which gave in under a short course of alkalies. Urinary examination was not made at that time; but from the way attack began and ended, we may infer that the urine would have been found to be as it is during the present attack.

This case I think carries its own comment. It explains many of the sudden catarrhs, which seem to come without rhyme or reason. In obstinate catarrhs of the antrum urinalysis might be of use in suggesting a cause.

I could quote many cases of tonsillar and lymphoid hypertrophy within the pharynx of the child where the urine showed marked and constant abnormality. In every such case the urine will show something; but in those cases where the lymphoid hypertrophy shuts off the nose completely the urine will be the more abnormal. In some cases the urine clears after this tissue has been removed. In others the urinary condition remains after operation. In the latter cases treat-

ment does not cease with the operation, but must be continued until the urine clears. In children with frequent throat trouble there will be found much digestive disturbance, and consequently an abnormal urine. The main "treatment" they require is the regulation of their eating in order to prevent attacks, and during attacks some attention to the intestinal tract.

III.

Thus we see how an individual's general condition may be reflected by a local condition within the upper respiratory tract. The trained observer sees, as in a mirror, the picture of his patient's systemic condition upon inspection of the nose and throat. The soft tissues of the tract, with their abundant nerve and blood supply, are quick to respond to any irritation from within; and the study of this relationship is very fascinating. The fluids of the economy are but the servants of the body; they carry from and to the external world all sustenance and waste from the different cells. It is certainly reasonable to suppose, then, that in these fluids may be found some indication of the condition of the economy. And, further, when we find a certain condition—say, of the throat—associated with a certain state of the urine (and both conditions clearing under treatment given according to the findings in the urine), may we not claim *some* value for urinalysis in laryngology?

Buffalo, N. Y., 466 Franklin St.

PRACTICAL EXPERIENCE WITH AUTOSCOPY.

Examination of the Air-Passages Without Mirror.

BY MAX THORNER, A.M., M.D., CINCINNATI, OHIO.

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From the time that Dr. Alfred Kirstein, of Berlin, published his first communications regarding his new method of Autoscopy, or *direct* inspection of the air-passages without a mirror, until now, when his greatly improved and perfected method is before the profession, there has not elapsed sufficient time to gather, by collective investigation, the necessary amount of evidence as to the value of his discovery. It is needless to investigate whether the principle of this method, *i. e.*, the possibility of direct linear inspection of the larynx and the trachea, is a new one, or whether it has been occasionally made use of by former observers; the fact remains that Kirstein was the one who first applied this principle practically and systematically, and who constructed upon this foundation a method which is at once new, ingenious, and, in its present form, probably perfect. I need not enter into a detailed description of this method, as there is sufficient literature on the subject to give all necessary information; the most exhaustive description being the monograph on Autoscopy by Kirstein himself.* I will, therefore, limit myself to say that the underlying principle rests upon the possibility of bringing the imaginary axis of the laryngo-tracheal tube and of the buccal cavity, which ordinarily are joined at an obtuse angle, into a straight line. This is effected by pushing the tongue, through forward and downward pressure, by means of a specially constructed spatula, out of the way. In doing this the epiglottis is elevated, through firm pressure upon the median glosso-epiglottidian ligament, and thus it is possible to get a direct view of the well-illuminated larynx and of the trachea, especially if the neck is slightly stretched forward.

What is the advantage of an additional method of examining the air-passages? For the inventor himself rejects the idea that autoscopy could ever supplant laryngoscopy. On general principles we must admit that a new method, the principle of which is so radically different from that of laryngoscopy, must of necessity add in some way or other to our diagnostic and therapeutic armamentarium. It is, above all, noteworthy that we are able to see the parts, *i. e.*, the larynx, the sub-

*A. Kirstein: Autoscopy of the Larynx and of the Trachea. Philadelphia: The F. A. Davis Company. 1897.

glottic space, and more or less of the trachea, in many cases down to the bifurcation, *directly*, and not in the reflected image. The difference is most noticeable, especially when we see the autoscopic image for the first time. The colors appear different, more vivid; the anatomical details are more distinct, more plastic; and differences of dimensions, especially as to height and depth, are more clearly appreciated. There are, however, two special advantages which are, in my opinion, alone important enough to secure to autoscopy a permanent place in our methods of examining the air-passages; the first is the possibility of being able to get a good and direct view of those portions of the laryngo-tracheal tract offering ordinarily the greatest obstacles to a good inspection, viz., the interior of the trachea, which, with the autoscope, in most cases, can be partially seen, and in some cases as far down as the bifurcation, and the posterior wall of the larynx, of which the autoscopic method affords almost a surface view—a view as it cannot be obtained by any other method. And what this means for the differential diagnosis of certain affections of the interarytenoid fold is too well known to require any comment. The second advantage is the undeniable fact that young children can be examined by the autoscopic method without great difficulty, while a laryngoscopic examination of them is often well-nigh impossible. On the other hand, it must be admitted, and Dr. Kirstein himself calls attention to it, that there are certain shortcomings of this method. There are a number of patients in whom the autoscope cannot be used at all, or only after previous cocainization of the parts; in others it is not possible to get a view of the trachea, or of all of the larynx; and of certain portions of the larynx—for instance, the anterior commissure, the ventricles of Morgagni, and the pyriform sinuses—the autoscopic examination furnishes in the majority of cases no good view at all.

My experience regarding the possibility of autoscopic examinatiion is as follows: Autoscopic manipulations must be practiced for some time before the examiner acquires the necessary dexterity. It is not just to judge about this method without this previous experience, as wrong conclusions might be readily drawn from lack of practice. Kirstein himself clearly points this out in his book. In about 15 to 20 per cent. of my cases it was possible to get a good and complete view of the larynx and of the trachea; in about one-third of these cases it was, however, not possible to see the anterior commissure. This difficulty may, however, be overcome, at least in part, by elevating the larynx from the outside with the thumb, a little help lately advocated by the inventor. In about 50 to 60 per cent. part of the larynx, especially the posterior wall, the upper portion of the trachea, could dis-

tinctly be seen. In the rest, the autoscopic examination was, for various reasons, not possible. These figures are, of course, only approximative, as I deducted them from my first attempts, when I had less experience, and from my later examinations. They may probably be slightly changed in another series of experiments. I did not find any great difference as to sex in the applicability of this method, although at times it appeared to me that women were better subjects for the autoscopic examination than men. Very rarely was pain complained of, and upon inquiry patients would usually admit that the method was more or less disagreeable, but not to such an extent that it appeared in any way an obstacle to repeated manipulations. In fact, if properly done, that is firmly and yet gently, most patients get readily used to it. I had a similar experience as Dr. Ephraim* with a female patient, who greatly preferred the autoscopic to the laryngoscopic examination. However, this must be looked upon as an exceptional occurrence. Autoscopy should — this is self-evident — be looked upon as supplementary to and not as supplanting laryngoscopic examination. In most cases it can be dispensed with, and should in every case be preceded by the use of the mirror. In many cases autoscopy will give us most valuable information, where laryngoscopy fails. This is especially true in affections of the posterior wall of the larynx and of the trachea. It enabled me, in a case of stenotic breathing, to distinctly see a compression of the trachea, probably due to an enlarged thyroid gland, which could not be seen with the laryngoscopic mirror.

For therapeutic purposes my experience is as yet limited. I found it very useful for intratracheal injections, which are much faciliated in such patients in which the method can at all be readily exhibited. For this purpose I had a syringe constructed with silver tube, bent at an angle of about 135 degrees. Of operative procedures, I can report but one, namely the removal of a large piece of chicken-bone, about 1¼ inches long, from the larynx. I used a very slender, serrated, straight tube forceps, eight inches long, in Krause's universal handle, such as is used for the male urethra. The removal was accomplished without any difficulty.

In conclusion, I will say that I consider Autoscopy the most important addition to our technical resources made since the discovery of the laryngoscope by Garcia. And I have no doubt that henceforth everyone, who wishes to master the technique of laryngology, will have to familiarize himself with this—after all astonishingly simple—method of laying the air-passages open to direct inspection.

*A. Ephraim: Ueber die directe Laryngoscopie (Autoscopie). *Monatsschr. fur Ohrenheilk.*, Feb., 1896.

INSTRUMENTS USED IN TONSILLOTOMY BY ELECTRO-CAUTERY DISSECTION.

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In the removal of abnormal tonsils by electro-cautery dissection I have found the following-described instruments of value, they having been modified or devised to meet the requirements of the operation. To assist in the production of cocaine anæsthesia I often use a long hypodermic syringe, and with it inject in both the anterior and pos-

FIGURE 1. Tonsil Syringe (half size).

terior pillars of the side to be operated upon a few minims of a 4-per-cent. cocaine solution. There is no appreciable effect derived from making the injection into the tissue of the tonsil, but a few minims injected under the mucous membrane of the pillars will give a good result. When properly injected a bleb is produced, which will for several minutes remain visible. The barrel of this syringe is made of metal, and the lower cap, after being screwed thereupon, is soldered, so as to do away with the leather washer at this point, which is always of necessity employed with the glass barrel. Another argument in favor of the metal as compared with the glass syringe barrel is that the calibre of the latter is seldom uniform, and hence the action of the

piston is not so regular, while with a metal barrel absolute accuracy is possible. And again, who cares to see either the piston or the solution being used? If desired, the former can always be easily examined and oiled by taking the syringe apart, while the quantity of the latter can be surely known and gauged by the indicator on the piston rod and the regulating nut upon the same; so I again repeat, why so often, in all hypodermic syringes, is the ureliable, breakable and unnecessary glass barrel to be met with, particularly as corrosive solutions are not employed?

Returning to the tonsil syringe under discussion, there is supplied therewith a cap to be tightly screwed upon the opening when the needle has been removed, which prevents drying of the piston washers.

The syringe, beyond the barrel, is sufficiently lengthened to permit of easy use in the fauces; and, to facilitate its being used with one hand, is provided with ring handles at either side and a ring terminus to the piston rod. Each syringe is supplied with two needles, and all are encased in a neat leather box, as shown in cut.

In many cases I omit the use of the syringe, and get the required anæsthesia by applying a solution of cocaine, varying in strength from 20 to 33 per cent., with a probe wrapped with cotton. I have found for this purpose an advantage in having probes of extra length and size, as shown in cuts. They are made of soft brass, nickel-plated.

FIGURE 2. Cotton Carrier Probes (two-thirds size).

In order to draw the tonsil forward toward the median line I use a spring-toothed forceps. I have tried different kinds and styles of for-

FIGURE 3. Spring Tonsil Forceps (half size).

ceps, with and without locking devices, some being of the scissors form of construction, but have found the simple form shown to be the most desirable, as with its use the part engaged can be instantly re-

leased if the patient is about to gag. The slide lock is a particular abomination to be avoided. While the forceps with moderately fine teeth, as shown in Fig. 3, is generally satisfactory, there are occasionally met with cases in which the tonsil surface is so soft and friable that a forceps is required with long enough tenacula to pierce through and into the deeper and firmer tissue below. In such cases I use the spring tenacula forceps here shown.

FIGURE 4. Spring Tenacula Tonsil Forceps (half size).

Either of these forceps will also be found of value in pulling forward a tonsil through the ring of a tonsillotome when an ordinary tonsillotomy is being done with any of the standard ring guillotines.

In making the dissection in my electro-cautery operation* I use a variety of cautery points, bent at angles from the shaft varying from 30° to 90°, with the bend either vertical or lateral from the line of the handle; and, being reversible, the former can be directed either up or down, and the latter either to the right or left. I have found those points or electrodes which are 5½ inches long most convenient to use. I will append illustrations showing the two extremes of either style.

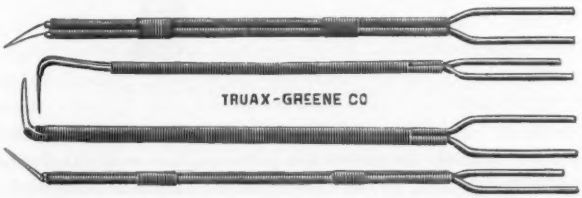

FIGURE 5. Electrodes for Electro-Cautery Dissection (two-thirds size).

The tongue depressor that I have found most satisfactory is here shown, and was fully described in the *Chicago Medical Recorder* for March, 1895. In this tongue depressor are two long and narrow parallel fenestræ, which tend to grasp the tongue and prevent its slipping, while, by being narrow, a flabby tongue cannot project up and through them so as to obstruct the view or become injured. The blade has

* *Jour. Am. Med. Assn.*, Nov. 22, 1890.

enough width to prevent its slipping to one side, and when in the median line is wide enough to prevent the edges of the tongue curling up at either side.

FIGURE 6. Operating Tongue Depressor (half size).

In order to increase the grasp and better facilitate any examination for which it is used, the end of the blade is given a slight downward bend, thereby assisting in the drawing of the tongue forward and away from the posterior pharyngeal wall.

Half-way down the handle a ring is provided, large enough to admit the index finger, and is placed at a right-angle to the flat of the handle. This ring will be found of the greatest utilty when the patient is requested to assist by holding the depressor.

The lower end of the handle is corrugated at either side, which is found to give the best surface for a handle. Corrugations in this place, from an aseptic standpoint, are not objectionable, as when found in the blade.

Columbus Memorial Building.

"CAN YOU CURE DEAFNESS CAUSED BY 'CATARRH?'"

A REPLY.

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"Doctor, can you cure deafness caused by 'catarrh'?"

When this question is asked of the modern aurist—as it *is* asked of him, and as it will be asked of *you*, time and time again, by people "deaf from 'catarrh,'" and by interested friends and relatives of such sufferers—a vast multitude of pertinent thoughts crowd forward for first utterance, in monstrous disregard of the invited "Yes!" or "No!"

Why not suppress this struggling throng, and set the inquirer's mind at rest, at once, with simple "Yes" or "No"? Or, if a conditional reply only be admissible, why not state briefly, plainly, categorically, upon what its contingency, its circumstantiality, its conditionality depend? Can it be, that after improving the ample opportunities recently afforded for vicarious and personal study of this question, judgment still halts in confusion or doubt? Is the problem of prognosis, here, contingent upon some factor actually so potent as to maximize the feature of uncertainty in any possible clinical case? Or, is it, that the question, as put, is so vague, or so general, that a categorical answer is simply impossible?

In short, if not "Yes" or "No"—then *what* is the correct answer to the question: "Can you cure deafness caused by 'catarrh'?"

An answer to *all* these questions—a solution of the entire problem—may perhaps more readily be arrived at by approaching the subject in a manner and from a direction somewhat different from those usually adopted by accepted authorities.

Let us consider, first, what we *mean*, when we speak of "deafness caused by 'catarrh.'"

Surely, there is present in our mind the clinical picture of a condition which abridges one's usefulness to one's fellow-men, and almost wholly ostracises one from their society; where the heart may nevermore be aroused by the cry of distress, soothed by the voice of sympathy, or thrilled by the song of love; and one walks among his fellows and the myriad sounds of Nature as in a living tomb. We recognize in it an affliction, than which few are more generally dreaded; few more intractable; and to which, we instinctively pray, that we may be spared the awful duty of condemning the wretched victim in utter hopelessness. *This* is implied in the phrase "deafness caused by 'catarrh.'"

But, what is there, in the morbid process which we call "catarrh," that involves such profound deafness; and how far may we hope to amend this with the means at present available?

The ear, proper, as you well know, is designed, physiologically, to transform the physical force of aerial sound-waves into a corresponding undulatory current of specific nervous force in the auditory nerve, which, on reaching the conscious cerebrum, vanishes in a perception of "sound." Without exposing the delicate terminal apparatus of the exquisitely sensitive auditory nerve to the dangers that would, inevitably, have attended its immediate exposure to the swash of the great aerial ocean, Divine Wisdom has effected the desired end by the creation of an extremely complicated and delicately adjusted apparatus which takes the force of sound-waves from the air, and transmits it through soft tissues, bone, and liquid, successively, to the terminal filaments of the auditory nerve. In order to have maximum hearing, reception and transmission of force must be effected normally by these organs. That we may comprehend *how* "catarrh" *produces deafness*, we must, first, learn *how it interferes with this process.* Then,—and not till then,—knowing its location and nature, can we determine intelligently whether or not it can be so dealt with as to restore, once more, normal receptivity and transmissivity to those aural structures whose function it is to take the force from aerial sound-waves and conduct it to the terminal filaments of the auditory nerve.

To ascertain, then, the location and the nature of "catarrh" of the ear, let us review, briefly, the essential mechanical features of the auditory receiving and transmitting apparatus operating between the ocean of sound-waves, without, and the terminal structures of the auditory nerve, within.

The external auditory canal, the drum cavity, the Eustacian tube, and the naso-pharynx, together, form an air-tube, as it were. Aerial sound-waves would flow freely through this, were it not for the pres-

ence of *the drum-head*—a vibratile, elastic membrane, which forms a complete septum in this air-tube, at the bottom of the external auditory canal. This membrane, whose circumference is attached to inflexible bone, is somewhat hopper-shaped; its radial fibers being convex outwardly, while its center lies to the median side of the plane of its circumference. It consists of,—say, three layers: the outer, of epithelium; the middle, of radial and circular elastic fibers; the inner, of mucous membrane. Imbedded in the uppermost radial structures of the elastic layer, is the handle of the *malleus*—a club-shaped bonelet, whose head lies considerably above the top of the *drum-head*, and vibrates in a direction contrary to that of its handle and the membrane below. By the impact of sound-waves upon the *drum-head*, its radial fibers are flattened into arcs of greater circles, whose chords are longer than before; thus shifting the center of the membrane, and extremity of the handle of the malleus, to a point still further from the plane of the circumference of the membrane. Thus, the force of sound-waves is received from the air into the soft tissues and transmitted unto bone.

In the solid bone forming the inner wall of the tympanic portion of the so-called "physiological air-tube" of the ear, is a tortuous passage,—*the bony labyrinth*, from which, open into the cavity of the *tympanum*, two "windows:" one, "the oval;" the other, "the round." The latter, in its normal condition, is closed by the "*secondary drum-head*",—an elastic, vibratory membrane, covered, on the tympanic side, by a layer of the mucous membrane lining that cavity and continuous with the inner layer of the "*drum-head.*" The former, or "*oval window*," is closed by an elastic membrane, to which is adherent the base of the foot-plate of the *stapes*, or little "*stirrup-bone.*" This ossicle projects into the cavity of the tympanum; and around its foot-plate, is an elastic *annular ligament.* By this arrangement, are retained the contents of the *bony labyrinth*,—a liquid, in which floats a membranous sac, approximately corresponding in shape with the bony labyrinth, containing a complicated, very delicate apparatus for the suspension of the terminal filaments of the auditory nerve. Impelled by force, the *stapes* operates as a piston upon the labyrinth; and moving with, but in a direction opposite to that of the *secondary drum-head* at the *round window*, it impresses its every movement upon the labyrinthine fluid, its contained membranous sac, and the terminal filaments of the auditory nerve, whose movements, normally, are attended by corresponding waves of nerve-force in that nerve—waves that roll inward to the *sensorium*, where they break in the consciousness of sound.

So far, we have briefly described the essential mechanical features

of the aural apparatus with which "the force of sound-waves is received from the air into soft tissues and transmitted unto bone;" and of that, with which force "transmitted unto bone," is, in turn, transmitted to liquid, and there transformed into waves of nervous excitation in the auditory nerve. It now remains but to describe the parts connecting and adjusting these, to finish what is indispensable of the mechanics of the auditory transmitting mechanism.

Between the head of the *malleus* and the head of the *stapes*, is suspended the *incus*, or *anvil-bone*, of the three bones, the most loosely attached to other parts. Attached to the inner surface of the handle of the *malleus*, is a muscle—*tensor tympani*; and to the head of the *stapes*, is another—*stapedius* (by many considered antagonists), which, co-ordinating, under reflex influences, with the extrinsic muscles of the ear, and with each other, regulate and maintain the normal pressure of these two bones upon their intervening fellow, the *incus*; while, at the same time, by acting reciprocally or alternately, they maintain, upon the *drum-head* (towards the sonorous air, without,) and upon the elastic membranes of the *round* and *oval windows* (restraining the labyrinthine fluid and structures within,) that degree of tension which will facilitate the best hearing for an aerial sound-wave of any consciously or unconsciously anticipated degree of force. Why the tension of this apparatus should be so delicately adjusted as to enable it to operate as a mechanical unit, or vibratory lever, so to speak, is obvious, when we reflect upon the fact, that the entire acoustic tract, extending from the *drum-head* inward, clear through the ear, is so many times shorter than that of the very shortest sound-wave audible, that the auditory transmitting mechanism must move, if at all, as a solid body, in response to the impact of sound-waves. It is clear, then, that normal mobility of all parts of the essential receiving and transmitting apparatus of the ear, is essential to normal hearing. Other things being equal, the more free the movement of this mechanism as a unit, and the more delicate its adjustment to the other parts which complete the auditory balance, the more sensitive the hearing. Conversely, the more impaired the mobility of any part or parts, and the more disturbed their tension reciprocally or with other parts, the greater, proportionally, will be the deafness.

Consider now, how this immobilization is effected by "catarrh."

Lining the inner surface of the *drum-head*, the outer surface of the *secondary drum-head*, the entire walls of the *middle-ear tract*; reflected as a covering over all its contained structures, above described,—sometimes closely, sometimes loosely; stretching in folds, bands, and septa, from, about, and between these structures; and extending along

the wall of the narrow *Eustachian tube* onto that of the *naso-pharynx*, is the *mucous membrane*, the *objective prey*—usually, but improperly, termed the *seat*, or *home*, of "catarrh" of the ear—"improperly," it has been said, for the following reason: aural "catarrh" is not a local disease; it is, at first, a functional disorder, and, later, "a chronic trophoneurosis of the mucous membrane of the middle ear, occurring coincidentally with similar trophoneuroses of the entire pneumatic system of the head and throat, and with other neuroses; all of which conditions are dependent upon a lowering of the general vitality due mainly to the continuous action of unfavorable climatic and hygienic surroundings."*

It is, however, by changes in the aural mucous membrane and, through it, in its immediate neighbors also, that the immobilization of the auditory transmitting mechanism is effected in "catarrh." Now, what are these "changes?" Let me quote to you a brief but adequate description of "catarrhal inflammation," the best, perhaps, that has been, or can be, given—one from the tongue of my respected preceptor, the eminent pathologist, Dr. Francis Delafield, of New York:

"ACUTE CATARRHAL INFLAMMATION OF MUCOUS MEMBRANES.

"In the first place, of catarrhal inflammation. Catarrhal inflammation of mucous membranes occurs both as an acute and chronic process. In the acute form we find the affected mucous membrane congested, which gives to it a brighter red color. There is in many cases a certain amount of swelling, and at the very beginning of the process the mucous membrane is dryer than it should be, on account of less mucus being produced by the glands. After the inflammation has lasted for a little time the functional activity of the mucous glands is greater, and the surface of the membrane is bathed with an increased amount of mucus. Mucus produced in too great quantity does not have the consistency or qualities of normal mucus; it is sometimes thicker, sometimes thinner, and is acrid and irritating to the parts. The degree of congestion varies considerably in different cases, and is regulated by the intensity of the inflammatory process. If the inflammation be very severe the parts will be very much congested, the blood-vessels will be gorged with blood, and the color of the mucous membrane, instead of being bright red, will be of a darker, bluish, livid color. In milder cases the mucous membrane will be of a redder color than it should be, and the epithelium will also undergo changes. The process of desquamation of the superficial epithelial cells, and the production of new epithelial cells, goes on more rapidly, so that an

*S. Sexton, in *Burnett's System of Diseases of the Ear, Nose and Throat.* Philadelphia: J. B. Lippincott Co., 1893. Vol I., p. 326.

examination of the mucus taken from the inflamed surface would reveal an increased number of epithelial cells. Sometimes the process of desquamation goes on so rapidly that new cells are not formed fast enough to take the place of the old ones, and we have as a result superficial ulcerations.

"*The changes which take place in acute catarrhal inflammation are always much more evident during the life of the patient than after death, and you will observe that these changes are not, properly speaking, structural changes.** The blood-vessels contain more blood, the mucus glands have their function altered, there is swelling of the mucous membrane, and there is increased desquamation of the epithelial cells; but, unless this latter process is sufficiently marked to produce ulceration, there are no structural changes in the mucous membrane. Hence, we may examine the part after death, and find no changes indicating that inflammation existed during the life of the patient. This is seen frequently enough at the autopsies of patients in whom we have observed before death that conjunctivitis was still going on. Upon examination of the eye after death it will be observed that the congestion has disappeared, the swelling has gone down, and there is perhaps no mucus present. *It is important for you to remember this fact, that acute catarrhal inflammation cannot be affirmed or denied from evidence obtained at an autopsy.**

"CHRONIC CATARRHAL INFLAMMATION OF MUCOUS MEMBRANES.

"*In chronic catarrhal inflammation of mucous membranes, structural changes do take place and persist after the death of the patient, and these changes can be as readily demonstrated after death as during life.** In a certain number of the examples of chronic catarrhal inflammation we find the mucous membrane congested, and in addition we find the blood-vessels larger than they should be and more numerous. In other examples we find exactly the opposite condition. The blood-vessels contain less blood than they should, and the mucous membrane, instead of being redder than normal, is of a white, grayish, or sodden appearance. The blood-vessels, instead of being more numerous and dilated, may appear to be less numerous than the blood-vessels in normal mucous membrane. The functional activity of the mucous glands is always affected in chronic catarrhal inflammation, but here again in different examples we find the mucous glands affected in two different ways. In a certain number of cases the production of mucous will be increased, and this mucous will be of an abnormal character. In other cases, exactly the opposite condition obtains. There is too little mucous produced, and as a result

*Not italicized by Dr. Delafield.

of this, the mucous membrane is constantly dry, and of a peculiar shining appearance. In ordinary naso-pharyngeal catarrh, you have a very good example of both these changes. There are a certain number of these cases in which there is too much mucous; the patients are continually blowing their nose, and raising mucous from their throat, and, upon inspection, strings of mucous will be found hanging from the walls of the pharynx. In other cases, the mucous membrane of the pharynx looks perfectly dry, there being no mucous whatever upon it. *This same variety of inflammation affects other mucous membranes.**

"Certain changes take place in the stroma of the mucous membrane: it is sometimes hypertrophied, sometimes atrophied. *If it is hypertrophied, the hypertrophy may be** either uniform or *circumscribed; if circumscribed, the hypertrophies form little tumors projecting from the surface of the mucous membrane. The mucous glands may be also hypertrophied** or atrophied, and here again *the hypertrophy may** involve all the glands of the affected mucous membrane, or it may *be confined to a limited number of the glands, and the rest remain in a normal condition. In still other cases we find circumscribed hypertrophies of stroma and circumscribed hypertrophies of glands, accompanied by the production of little polypoid growths.** In still other cases the glands become cystic; the ducts of the glands become narrowed or obstructed, and there is an accumulation of mucous in the lower part of the glands, which results in their distention, so as to form cysts, sometimes of considerable size—large enough to be seen with the naked eye. *The changes which we have described, you observe, are sufficient to produce well-marked structural changes in the mucous membrane.** If the blood-vessels are increased in number and size, if the stroma is atrophied or hypertrophied, if the mucous glands are atrophied or hypertrophied, or cystic, all these changes can be recognized as well after the patient's death as during his life. I should have stated that in this form of inflammation we have the same changes taking place in the epithelium as in acute inflammation, namely, desquamation of the epithelial cells. The desquamation may be so rapid as to give rise to superficial ulceration."†

If you have noticed particularly those portions of this remarkable adequate description of "catarrhal inflammation," which I have taken the liberty of emphasizing, you must certainly appreciate the fact that "deafness caused by 'catarrh'" is curable, or not, accordingly as the

*Not italicized by Dr. Delafield.

†*Lectures on the Practice of Medicine*, by Francis Delafield, M.D., ("delivered in the College of Physicians and Surgeons during the regular winter session of 1880-81"). Reported, Arranged and Published by M. Josiah Roberts, M.D.; New York; 1881; pp. 9-11.

changes in the mucous membrane, and their physical consequences, are remediable, removable, or not. Where these are mainly functional, cure by simple treatment is almost certain. Where, however, these are structural, cure depends wholly upon the possibility of so acting upon these new physical conditions as to liberate the essential transmitting mechanism. In some cases this can be accomplished by medicinal, hygienic, and simple mechanical measures. In others, where the means already mentioned prove ineffectual, surgical operation may serve to release the transmitting mechanism from its bonds—very limited encroachment only, upon the impeded structures of the tympanum, frequently accomplishing this end, particularly in those cases where the process of local tissue metamorphosis has remained circumscribed, as mentioned, above, by Dr. Delafield. In still other cases, the structural changes will have involved a larger portion of the essential transmitting mechanism than can be restored to normal mobility by severance from their normally adjacent, but abnormally attached parts. In such cases, the proper procedure—liberation of the deeper portion of the auditory conducting apparatus, still movable, from the permanently immobilized portion, with provision for free entrance of aerial sound-waves to that mobilized deeper portion—may restore hearing. In all cases, therefore, of intractable deafness from chronic aural "catarrh," where milder means have first been tried intelligently, but in vain, the drum-head should be opened and the tympanum explored, with a view to determining the degree of mobility of the several parts of the transmitting mechanism, the location and character of the abnormal structural conditions that hinder its free movement, and the possibility, or rather degree of probability, of restoring hearing by surgical operation upon these parts. The details of such surgical procedure are, of course, peculiar to each individual case; and are only to be estimated and put into execution by one wholly familiar with the surgical-anatomy and physiology of the ear, and thoroughly skilled in the technique of such deep and difficult aural surgery.

As an *epitome* of our modern resources, "The author would, therefore," in the language of the late lamented Dr. Samuel Sexton, of New York, "*sum up* the rules for the treatment of aural catarrh in the following statement. Place the patient in any case in the best condition possible by guarding him from changes of temperature and moisture, by improving his hygienic surroundings, carefully attending to his diet, removing all causes of reflex irritation, and in all ways striving to improve the general health and tone of the system. In addition, if the case seems to be a recent one in which hypertrophy and

hyperæmia of the mucous membrane, and occlusion of the Eustachian tube play the principal part, general treatment may be supplemented by the judicious use of the Poltizer bag and catheter, and in selected cases by local treatment of the naso-pharyngeal catarrh. Should both general and local measures of this sort not produce a speedy improvement, no further time must be wasted, and the radical operation must be done without delay." *

If, however, all efforts to mobilize that portion of the transmitting mechanism acting in the labyrinth upon the auditory nerve, prove unsuccessful, (medical science of the present not sanctioning, here, surgical encroachment upon the labyrinth,) the physician may feel that he has done his duty, having conscientiously exhausted every reasonable resource to restore the hearing, before condemning to utter hopelessness the wretched victim of profound deafness of chronic aural catarrh.

*Burnett's *System of Diseases of the Ear, Nose and Throat.* Philadelphia: J. B. Lippincott Co. 1893. Vol. I., page 372.

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CHRONIC AURAL CATARRH.

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Briefly stated, the object of my paper is to demonstrate the morbid changes that occur in the nose, throat and Eustachian tubes and tympanum in chronic aural catarrh. Before entering further upon this subject, a few words upon the importance of the structure involved. For practical purpose we may consider the middle ear as consisting of the membrana tympani, the tympanic cavity, the mastoid cells, the chains of ossicles and certain muscles, nerves, and vessels. We have here in a very limited space a set of delicate structures performing important functions, easily disturbed from the standard of health by a variety of causes, and attaining increased importance from their contiguity to such vital parts as the labyrinth, the internal jugular vein and artery, the dura mater, and several venous sinuses of the brain; one may be excused from thinking that, even if no alarm is felt for the tympanum itself, when attacked by inflammation, its anatomical neighbors might well command respect. Yet how often does the well-educated practitioner content himself with uttering a few common-places about the benign operations of nature, prescribing sometimes, while ulceration is quietly working its way among the structures of the tympanum.

If the profession at large would only keep in mind the pregnant fact that "every congestion of the lining membrane of the tympanum is a periostitis, and every ulceration of it a caries of the osseous walls that may lead to the most serious consequences," many lives would be saved, many useful ears would be spared. The seeds of most diseases of the nose and throat are generally laid in childhood, when the subjects of these troubles have suffered in early life from the exanthematous fevers to which they are so much exposed. In scarlet fever, measles and the like, that considerable area of mucous membrane which covers the pharynx and nasal passages is throughout affected, so that, as might be expected, long after these maladies have been recovered from a greater or lesser part of the area is found to have undergone change. There is little doubt that if, during the stages of these fevers,

more attention were paid to the local state of the nose, so many troublesome chronic affections would not be seen. Hence the various conditions which lead to aural catarrh and deafness. If we consider for a moment the structure which the mucous membrane of this region covers, we can map out for ourselves some of the probable results of acute inflammations affecting it.

Chronic aural catarrh is generally the result of acute inflammation of mucous membrane above mentioned, and is commonly due to extension from the pharynx along the Eustachian tube, which as we all know is the channel designed by nature for maintaining a due equilibrium between the atmosphere and tympanic air, and for draining superfluous mucous from the tympanum; when all these parts concerned are in a normal condition it admirably serves both these purposes; but, as I have shown, it serves also as a channel for conducting morbid material from the pharynx; and when we remember its shortness, and the continuity of its mucous membrane with that of the pharynx, it is far from strange that it should do so. The more closely we study the throat and nose symptoms in all aural diseases, the more frequently shall we find facts demonstrating that when these parts are morbidly affected, other organs, though remote in their positions, easily become involved.

In examining a case of chronic catarrh of the middle ear, with or without obstruction of the Eustachian tube, we will generally see, on looking at the throat, thick tenacious mucus adhering to the upper part of the pharynx and post-nasal region, and with this what is termed a granular pharynx, that is the back of the pharynx is seen to be studded with separate granular bodies. This morbid state often involves the post-nasal region, and by extension to the opening of the Eustachian tubes causes obstruction to the passage of air to the tympanum. In this region is found the adenoid tissue which was described by Luschkas, which normally exists between the orifices of the Eustachian tubes, and the excessive development of this tissue takes the form of what we call adenoid vegetation and growth; this causes imperfect nasal breathing as well as obstruction of the Eustachian tubes. In this form the ailment attacks children and young or middle-aged persons. We all know the aspect of a child who is deaf from obstruction of the Eustachian tube; he is unable to breathe through his nostrils, the characteristic open mouth, the odd thick voice, the stupid look, and the fact of the child snoring when asleep bespeaks the conditions. When this condition is present, and when the tonsils are not found so very much enlarged, adenoid growths may be suspected and sought for. There are two ways to find these

growths—either by rhinoscopy or by the fingers. The value of the first has its difficulties; this applies to young children, and to young people who have shallow pharynx. I find it impossible to get clear reflection of the posterior nares. But a far more easy method is the finger examination; by touch adenoid growths may be easily recognized; it is as if the finger touched a bag of worms. If the patient is seated in a chair, the forefinger of the right hand, protected by a guard, may easily be introduced behind the soft plate; owing to the great vascularity of the growth, they bleed when touched.

The condition of affairs is easily diagnosed by the assistance of auscultation and Poltizer's bag; by it we become informed whether the Eustachian tube is freely or partially penetrable by a stream of air; subsequently, by inspection of the membrana tympani, the cone of light and other general observations will wholly determine, with some precision, the nature of the alterations which have caused the deafness —not forgetting the valuable assistance afforded by the use of the tuning fork. There are other valuable aids in the diagnosis, such as the history of the case; the patient's statements; the origin of the disease; the kind, duration and degree of deafness. These are such common accompaniments of chronic aural catarrh, that it would be encroaching too much upon the valuable space of this Journal to describe them in detail. Passing on to the therapeutic management of these cases of chronic aural catarrh, the most efficient consists in thorough routine treatment of the whole naso-pharyngeal region by means of well-chosen sprays and pigments. Adenoid growths and hypertrophies of the nasal and post-nasal region, which impair the functions of nasal breathing and which fail to improve under mild treatment, must be reduced by an operation best suited to the case. For the post-nasal vegetations, I use my finger nail, after first making my finger and the parts aseptic; the nasal I remove by the galvano-cautery; sometimes I use trichloracetic acid, each case being a law unto itself. The removal of any constitutional dyscrasia. Prescribing cod liver oil, syrup of the iodide of iron, tonics, and placing the patient under the most favorable hygienic conditions. In gouty or rheumatic cases we should, in addition, prescribe such constitutional remedies as are efficacious. After first inspecting the meatus and the drum-head, I determine the hearing distance and proceed to the examination of the Eustachian tube, forcing air into the cavity of the tympanum, and determine, by means of the otoscope, whether a current of air enters the cavity. When the hearing distance is improved, I proceed to use different vapors—iodine and ether, camphor, menthol and thymol. If there is excessive secretion from the mucous membrane of the tym-

panum and Eustachian tube, I use an injection of some mild astringent into the middle ear, continuing them twice a week. If I find no improvement after a few weeks' treatment, then there must be thickening of the mucous membrane, with rigidity and diminished mobility of the ossicles; for such cases I use injections of iodide of potassium, and aural massage; lately I have been employing a vapor massage by means of the universal Multinebular Vaporizer; in those chronic cases with thickening and rigidity of the ossicle, have found excellent results. Of course, a thorough routine treatment of the whole naso-pharyngeal region by means of well-chosen sprays and pigments must be kept up. As chronic catarrh is the commonest form of deafness, so is tinnitus aurium the most frequent result or sign of it. Distension of the blood-vessels in the tympanic cavity renders a beating or pulsating sound; by following Dr. Dundas Grant's method we can determine the location: "If pressure on the common carotid in the neck checks or diminishes the pulsations, the congestion is in the middle or external ear. If pressure on the vertebral arteries does so, it is in the internal ear, supplied by the internal auditory artery, a branch of the basilar, which is formed by the junction of the two vertebrals."* If I find stenosis of the Eustachian tube, I pass Lammarg's bougies, gradually increasing the size.

The line of treatment which I have rapidly sketched is not difficult of execution; nothing more nor less than common-sense applications of well-known principles of aural surgery; and with reference to the success I can only answer from my own experience and that of numerous others, that the results are quite as good as would be expected from the rational treatment of catarrh in such a situation. However, it is only through a competent knowledge of the anatomy and morbid appearance that we can even hope to fully understand the course of a chronic catarrhal affection, and to form a correct diagnosis as shall lead to successful treatment and permanent cure.

*THE LARYNGOSCOPE, July, 1896.

222 Post St.

CLINICAL REPORTS.

LACTOPHENIN AND NUCLEIN.

BY W. C. BUCKLEY, M.D., PHILADELHIA, PA.

Two things in pathogenesis and therapeusis I believe are true:

The first is that if any disease of the throat and nares be microbic in character, tonsilitis is one; and an excellent treatment for it is the local application of lactophenin, which is about the same, chemically, as phenacetin.

Lactophenin, however, differs in containing lactic acid instead of acetic acid, and this slight difference, chemically, seems to make a vast difference therapeutically. It is a white and comparatively tasteless powder, sparingly soluble in water. Lactophenin is prescribed also internally in the same affection. It reduces abnormal temperature; but does not seem to exert any marked influence upon the circulation or respiration. I have used it in pneumonia, influenza, scarlatina, acute tuberculosis acccompanied by fever, and septicæmia, with excellent results.

In the high temperature and restlessness of enteric fever (typhoid) it has also served me a most excellent purpose; here a child may take one or two grains with pleasant effect. The full adult dose is from four to sixteen grains. In giving this remedy, the proper plan is to begin with small doses, and increase according to the effect produced.

The second is that in disorganized states of the blood, and in all forms of wasting disease, *nuclein solution* (Auld) is probably the greatest tissue-builder now known—the chief of the "*defensive proteids.*" It is used by the mouth and hypodermically. Nuclein powder (nuclein in trituration), used topically in ulceration, also in diphtheria, tonsilitis, etc.; in the former and in diphtheria my experience with it has been most favorable.

723 Berks Street.

EDITORIAL DEPARTMENT.

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EDITORIAL.

RECENT LITERATURE CONCERNING THE NASAL ACCESSORY CAVITIES.

The anatomy and physiology of the various portions of the body have not been equally exploited, and even the gross anatomy of many portions is little understood. It is only comparatively recently, for instance, that the functions of the mastoid antrum and cells have been approximately understood; and that the indications for, and the technique of operations upon it, have been intelligently formulated. But of all the bony regions of the skull, perhaps the group of cavities tributary to the nasal fossæ are the least understood as regards their

anatomy, physiology, pathology, and treatment when diseased; the natural result seemingly, of their being unusually difficult of access, and that the symptoms produced by their derangement are more or less baffling and obscure, though their interpretation is of the utmost importance, not only to comfort, but actually to life. What has just been stated is emphatically borne out by very recent clinical experience.

Prominent among those recently published are, the report in the *Journal of the American Medical Association* of the discussion, in the Chicago Academy of Medicine, on Dr. Henry Gradle's essay, entitled "Diseases of the Nasal Accessory Cavities," and an article by Dr. C. R. Holmes, of Cincinnati, in the *Archives of Ophthalmology*, on "The Sphenoidal Cavity and Its Relation to the Eye." The most startling facts established relate to the anatomy of these cavities. Classical topography is more or less discredited, as well as the generalizations of anatomical text-books — fair elementary guides to the undergraduate, but sometimes misleading ones to the surgeon. Thus, in the discussion in the Chicago Academy, Dr. E. S Talbot stated that in his elucidation of deformities of the nose and antrum (maxillary) 6,000 antra were examined, and that few of these cavities were uniform in their develpment. "Some of them were very small; much smaller than the average antra mentioned by Gray. One of these antra may be divided into a number of cells, and * * how absurd it would be to examine an antrum of that kind with a light because of the fact of its being filled up with bony cells. Sometimes these little cells are located below the orbit, and the lower part of the orbit is entirely filled up. * * * In some cases the floor of the nose would be found extending over the alveolar processs. * * * In the last ten years I have had two patients come to me who have had openings drilled from the palatine root of the first molar tooth into the floor of the nose. I thought that the person who operated upon these jaws must have had a poor knowldge of the anatomy of the parts. * * * In examining these 6,000 antra I found the lowest point was invariably situated between the root of the second bicuspid and the first permanent molar. * * * Therefore the proper place [for entrance and drainage], according to the examinations made, would be just midway between the root of the second bicuspid and the first permanent molar, on the outside of the alveolar process."

No less important are the findings of Dr. Holmes regarding the anatomical relations of the sphenoidal cavities founded upon the tabulated measurements of fifty specimens. Contrary to the statements of certain authoritative anatomists, he established that "the ostium sphenoidale is *not* behind the posterior end of the middle turbinated, but

above, the shortest distance being 7 *mm.*, and the longest 16, and the average 12 *mm.*" Again, contrary to the statement of another noted authority, in not a single one of the fifty specimens did Dr. Holmes find an opening from the sphenoidal cavity to the posterior ethmoidal sinus, and hence he infers that such does not exist, "except as a rare anomaly, or in disease." Eighteen times (39 per cent.) it would be possible to enter the sphenoidal opening by means of a probe, and 28 times (61 per cent.) it would be impossible. The thickness of the anterior wall near the roof varies from 0.15 *mm.* to 2 *mm.*, and that of the roof fluctuates from dehiscence to 3 *mm.*, the average being 0.8. "Average cubic contents, 6.67 *cm.* Very important are the measurements of the bone thickness between the sphenoidal cavity and the foramen opticum. In two cases dehiscence existed, and, in fourteen the bone was classified as being "like paper." Dr. Holmes from these last measurements deduced anatomically that: "It is from extension of the disease existing in the sphenoidal cavity through this thin wall that many cases of obscure retrobulbar neuritis develop, and often end in blindness. Clinically he supports this view by reporting three of his own cases, in one of which there was unrecognized empyema of the left sphenoidal sinus, intense headache, total loss of sight in the left eye, and in which, on opening the cavity, there was a liberation of pus and recovery of vision. The second case was one of unrecognized empyema and necrosis of the sphenoid, visual disturbance, and finally cerebral hæmorrhage and death. The autopsy disclosed a blood-clot, covering the area of the sella turcica, anterior clinoid process, and optic chiasm, extending forward toward the cribriform plate. The dura and bony roof over the sphenoidal cavity had been entirely destroyed, and from the location and appearance of the clot, it was evident that a vessel in the region of the cavernous sinus had become eroded and ruptured. The third case was one of empyema of the sphenoidal, ethmoidal and frontal sinus, which had led to cerebral abscess and death.

To return to the discussion in the Chicago Academy of Medicine: As to the frequency of disease of the accessory cavities, the startling announcement made a year ago by Fraenkel, was cited, namely: that in 146 unselected autopsies of cadavers, as they occurred in the post-mortem room at Hamburg, he found no less than 63 instances — that is to say, 40 per cent. — in which there was involvement of one or more of the accessory cavities of the nose. He found one cavity involved thirty-seven times; two cavities, eighteen times; three, six times; four, one time; and all six cavities (two frontal, two sphenoidal and two maxillary sinuses), one time. In no instance did he

find disease of the ethmoid sinus. These were unselected autopsies. Some of the diseases predisposed to inflammatory involvement of the sinuses, especially pneumonia and cerebro-spinal meningitis, in which instances a very large percentage of sinus disease was present, more so than in the chronic forms of disease. In peritonitis also a large number of instances were met with, several of them apparently due to the presence of the colon bacillus. The findings of Wolff and Harke were also cited. Wolff found, in twenty-two cadavers of children dead of diphtheria, maxillary sinus involvement in every instance, and the sphenoidal sinus diseased in every instance in which it had developed. In fifteen it was undeveloped on account of age, while in seven cases in which it existed, it was diseased. The involvement was specified as catarrhal or diphtheritic, according to the character of the disease in the nasal fossæ. Similarly, Harke found, of thirty children dead of infectious diseases of the air-passage, like croup, diphtheria, measles, whooping-cough and scarlet fever, suppuration of one or more cavities in all instances; while of thirty-seven adults dead with acute infectious diseases there were thirty-one cases of sinus involvement.

The essayist stated, with good reason, that "while we know practically nothing as to the pain produced in acute affections of the sphenoid and ethmoid sinuses in the acute form, though we do of those of the frontal and maxillary cavities, in all probability, however, he believes, that many of the headaches and neuralgic pains occurring in acute diseases are in reality due to the involvement of either the sphenoidal or ethmoidal sinuses. He concludes also that most of the acute troubles are transient, and ultimately cease even without treatment; and that it is rather questionable whether we are called upon to treat them actively, as the treatment would necessarily be of a surgical nature. The bulk of clinical works, of course, pertains to chronic affections of the sinuses, and Dr. Gradle found, that the reason of his failures in his earlier cases was insufficient drainage; not because his opening was not sufficiently patent, but because he did not recognize the fact that the pus is so tenacious that it will not drain from the maxillary sinus. He now punctures through the alveolar process, and using frequent irrigation, which the patient carries out at home two or three times a day, his results have been much better.

In the discussion, all the speakers agreed that the transillumination could not be depended upon in making a diagnosis of antrum disease, and that experience had also demonstrated that drainage through the mouth is the most unsuccessful method of all, an opening through the anterior wall of the antrum or from the anterior part of the inferior nasal meatus under the turbinated, being much more effectual. As to

the etiology of antral disease, and the common opinion of dentists and some physicians that it is in most cases due to abscessed molar teeth, Dr. Talbot stated that his researches forced him to conclude, with Dr. M. H. Fletcher, of Cincinnati, that this is an error. Dr. Fletcher, in 1,000 antra found 252 upper molars abscessed, making 25 per cent. of the antra which had abscesses in this locality, or one for every fourth antrum. "Out of the 252 possible cases, perforation into the antrum was found only twelve times, thus showing over 4½ per cent., or about one in every twenty-one of the abscessed teeth in this locality which are connected with the antrum." In the treatment of 367 cases of pulpless molar teeth, Dr. Talbot only found 3 per cent. of diseased antra; and Dr. Fletcher, in 224 cases of such teeth, found pus in the antrum only once.

The value of accurate anatomical knowledge of the relations of the nasal accessory cavities in interpreting certain symptoms, is well illustrated by Dr. Holmes' analysis of his cases of sphenoidal sinus disease. In his first case, dull pain in the left side of the head and face, aggravated by colds, together with intense and constant neuralgia of the first division of the fifth nerve, he found clearly due to retention of pus when the ostium sphenoidale was closed by swelling of the mucous membrane and turbinated bodies, and to the extension of inflammation through the thin walls of the sphenoidal cavity into the sphenoidal fissure, causing first irritation, then pressure, on the fifth nerve, while the blindness, exophthalmus and congestion were due to the same inflammation extending through very thin bone to the optic nerve, and also strangulating the ophthalmic vein. F. B. E.

THE TWELFTH INTERNATIONAL MEDICAL CONGRESS.

It would seem as though something like a palsy had fallen on the Twelfth International Congress, to be held at Moscow, August 18-27, 1897. Professor Erismann, of the Institute of Hygiene, was the energetic and able Secretary-General, and was earnestly engaged in putting in motion the machinery which would in due time have drawn together an aggregation of scientific stars equal to that which assembled at Berlin or at Rome. But a too free expression of opinion on Russian political affairs caused the removal of the Secretary-General from his post and the stoppage of the machinery, and in the meantime the Congress feels his absence keenly.

The Department of Laryngology is under the able charge of Dr. Stepanow of Moscow, president of the section, Heryng, of Warsaw;

Lomikowsky, of Krakow; Simanowsky, of St. Petersbourg, and others. That of Otology, under Dr. von Stein, of Moscow, Byer and others. Among the subjects set for discussion are: Suppurative Inflammation of the Frontal Sinus; Cancer of the Larynx; Progress of the Specialty; The X-Rays Applied to the Larynx; and Photography of the Larynx. In Otology: Physiological Investigations of the Labyrinth; Surgical Treatment of Sclerosing Inflammation of the Mastoid; A Study of the Question of Cholesteatomata, and other subjects. Nothing very new or epoch-making is noticeable in this program, but all the proposed papers deal with matters of much practical importance. G. S. R.

CONTRIBUTIONS TO THE MARCH ISSUE.

The March issue of THE LARYNGOSCOPE will contain the following list of original articles, besides editorials and the usual condensation of the principal articles from current literature:

Dr. Gottlieb Kicer, Copenhagen, Denmark: "Perichondritis of the Nose."

Dr. A. G. Hobbs, Atlanta, Ga.: "Some Amusing Instances of Nasal Reflex."

Dr. J. Walter Park, Harrisburg, Pa.: "Report of Interesting Nose and Throat Cases."

Dr. Lewis S. Somers, Philadelphia: "The Lingual Tonsil."

Dr. S. C. Ayres, Cincinnati: "Report of Cases of Mucous in the Cavity of the Tympanum."

Dr. J. B. Keber, St. Louis: "Report of Cases."

Dr. William Porter, St. Louis: Subject unannounced.

SELECTIONS
FROM CURRENT MEDICAL PUBLICATIONS.

RHINOLOGICAL.

Antisepsis and Intra-Nasal Medication.

Dr. St. Clair Thompson states that when the interior of the nasal fossæ are practically aseptic, it is not necessary to make them more sterile (*Revue Int. de Rhin., Otol. et de Laryng.*, Oct., 1896).

The presence of a foreign body in the nose excites the mucous secretion, and the vibrations of the ciliated epithelium tend to expel rapidly every solid particle which comes in contact with it. It is therefore advisable to abstain from intra-nasal medication except in special cases.

In order to free the nasal fossæ from purulent masses, it is preferable to use solutions of an alkaline character rather than strong antiseptic solutions. It is especially necessary to disinfect the fingers and instruments which are to be introduced into the nose. After an operation the instruments should be washed in a 5-per-cent. carbolic solution, kept in a closed case, and washed again in the same solution before they are used, when they will be sufficiently aseptic. The art of antisepsis consists especially in giving great attention to small details.

W. S.

Ozena, Its Origin and Its Treatment by Interstitial Electrolysis.

Dr. Bayer, after having given a resumé of the present theory of ozena from a bacteriological standpoint, gives the results which he has obtained by the interstitial cupric electrolysis of Cheval (*Revue Hebd. de Laryngologie*, May 30, 1896). This treatment is very efficacious, but it is not without danger; and it should be employed only with the greatest care. In seven cases, there were six with marked improvement, but two were attacked with otitis after the operation, of which one died twenty days after the operation in a meningitic coma. One sitting of electrolysis is sufficient to modify the secretion and to cause the odor to disappear. In another case the ozena gave place to a

chronic catarrhal condition, but without fetor. Sometimes the action of electrolysis is not limited to the side on which the application is made, but extends to the other nasal fossa, and even to the naso-pharyngeal cavity.

The author then discusses the bacteriology of ozena. He considers it an atrophic neurosis, with abnormal secretion, which forms a suitable medium for the culture of cocco-bacillus of Loewenberg and Abel. The best treatment is interstitial electrolysis, which is almost specific, but is not free of danger. It should be applied only with the consent of the patient, who should be informed of the effects. Two or more sittings are necessary, and weak currents of six to eight milliampères should be used. W. S.

Sozoiodole in Rhino-Laryngology.

Bresgen, Böhn, Seiffert, Morris Schmidt, and others, recommend the different sozoiodole salts in the varied conditions affecting the upper air-passages (*Am. Medico-Surg. Bulletin*). In swelling of the mucous membrane, with mucus collections, the sodium combinations are suggested. They are used in powder form. The zinc preparations are employed with good results in atrophic conditions. Flatau, of Berlin, has used the following ointment with advantage in the treatment of fetid atrophic rhinitis. It is applied by means of tampons.

℞ Sozoiodole-zinc ..... 1 to 2 parts.
Vaselin ..... 8 parts.
Lanoline ..... 8 parts.
Liquid paraffin ..... q. s. to make a soft ointment.

This combination never produces symptoms of irritation.

M. D. L.

Nasal Obstruction and the Symptoms of Cardiac Disease.

In a very interesting and practical paper upon the importance of examining all cardiac cases in which a seeming failure of compensation takes place, Dr. G. A. Lockwood (*N. Y. Med. Journal*, Jan. 16, 1897) attracts attention to a subject which is deserving of further study. He mentions dyspnœa as the most important symptom and the earliest evidence of failing compensation, and gives various general causes for its appearance. To these he adds nasal obstruction, as being "hitherto neglected and undescribed." Patients suffering from heart affections, according to his opinion, are more subject to nasal obstruction than those with normal hearts. This clinical observation is supported by theoretical arguments: Cardiac disease is most frequently found in rheumatic and gouty individuals. These dyscrasiæ favor catarrhal manifestations of the mucous membranes. The structure of turbinated tissue readily allows congestion and great

enlargements, which conditions are among the early signs of general venous congestion that attend a failing heart. Headache, drowsiness, mental hebetude, and other symptoms are secondary to an insufficient supply of good air. With a retarded oxidation of the blood, the arteries become irritated, and, by contracting, increase the resistance, and thus force more work upon the heart.

Eight cases, with distinctive histories, are recorded in whom the failing heart-action was promptly benefited by correcting the nasal obstruction. In some, ecchondromata were removed, while in others the turbinated enlargements were reduced. The conclusions reached by the author are as follows:

1. It is highly probable that patients with cardiac disease are more subject to nasal obstruction than others.

2. Nasal obstruction, occurring in a patient with cardiac disease, may upset the balance of respiratory compensation, and produce decided symptoms.

3. Unless care be taken these symptoms may be mistaken for those of failing compensation, and may lead to a gloomy prognosis and a faulty treatment.

4. Unless the nasal obstruction be properly relieved, and the patient allowed a sufficient quantity of good air, the arterial spasm may possibly occur, throwing an increased amount of work on the heart, already handicapped, and may become a factor in inducing dilatation. The effect of the poor quality of the blood thus supplied to the endocardium must also be taken into consideration.

5. Nasal examination made during the day may not reveal the actual obstruction, which is most apt to appear at night, when the patient is recumbent and the circulation is in its most sluggish state. To the congestion of the posterior portion of the inferior turbinated bodies thus induced the characteristic nocturnal attacks are to be ascribed, through the medium of asphyxia and arterial contraction. Nasal examination, however, usually reveals extreme vasomotor irritability of the turbinated bodies.

6. In cases of cardiac disease, including angina and pseudo-angina pectoris, no estimate of the patient's condition can be made, and no rational treatment can be inaugurated without a thorough examination of the patency of the upper respiratory passages. M. D. L.

New Method of Dilating Strictures of the Eustachian Tube by Means of the Galvanic Current.

This treatment is indicated in cases where Politzeration or catheteriztion does not prove successful in inflating the middle chamber. In such instances there is a narrowing or stricture of the tube. To over-

come this obstruction, Dr. Arthur B. Duel (*N. Y. Med. Journal*, Jan. 16, 1897) has devised an electro-therapeutic instrument, believing that the "negative pole of the galvanic current retards the excitability and growth of tissue, and causes exudates to be re-absorbed. The instruments employed are "copper bougies, varying from No. 3 to No. 6 (French scale), securely mounted on No. 5 piano wire. These are passed through small, insulated, fine silver catheters, and drawn back until the bulging portion of the bougie fits tightly in the mouth of the catheter."

The positive pole is placed in the hand of the patient. It is emphatically stated that the current shonld be controlled by a perfect rheostat and milliampèremeter. The bougie is passed through the tube in the usual manner, the tip being pushed forward until it meets the obstruction. The current is then slowly turned on until from two to five milliampères are used. It is not necessary to give more than this quantity at any time. Contact should be kept up for not more than five minutes, at the end of which period the bougie can be passed through the softened stricture. The current should always be turned on and off gradually; never suddenly. Good results are reported by this treatment. No histories were given in this preliminary report.

M. D. L.

LARYNGOLOGICAL.

Diphtheria Antitoxin.

The conclusions of Dr. E. W. Robertson (*Gaillard's Med. Jour.*) are:

1. Antitoxin is a therapeutical measure of importance.

2. It is powerful for good in the great majority of cases, especially if used in the incipiency of the case.

3. "Delay is dangerous," for, in proportion as the system is saturated with the disease germs, in same rate are chances of victory for antitoxin lessened. The great need in the proposition is this: Permeate the tissues and blood with antitoxin early enough to assist the recuperative powers of nature.

4. Wiser to use a moderate dose as curative and minimum as preventive; but dosage not positively agreed upon. One party favors large doses—even larger for a child—to destroy the powerful germs (or antagonize); other, smaller doses, so as not to endanger disorganization of blood globules. The requirement is proper dosage, but it is most evident that minimum is preferable to maximum dosage, as already intimated, for this reason: Intact red blood-globules are

more important (admitting their liability to injury by serum) to the economy, than deficiency of antitoxin, especially when used early. Besides, antitoxin can be repeated, upon this principle, viz.: Powerful remedies can be borne better in small, repeated doses, than in one large one. This is in accordance with established principles of therapeusis generally.

5. Recent antitoxin is safer.

6. There never was a drug of power that has not shown some untoward results, or that, at times, has not utterly failed.

7. It is agreed that the hypodermatic method is the plan. Antitoxin is inert (or without effect) per rectum, unless through a broken surface.

8. Doubt about the diagnosis of diphtheria, or bacteriological results, is not imperative (at least need not delay treatment), and need not forbid the use of antitoxin. It is used to immunize those liable to be attacked, and, if, so, why not employ it to counteract supposed poison already existing?

9. I conclude that this question is unsettled, namely, whether it is a practitioner's duty to practice sero-therapeusis. S. S. B.

Diphtheria Bacillus and the Roentgen Rays.

Berton, in the *Bull. Gen. de Therapeu.*, states, as a result of experiments made by him, that cultures of the diphtheria bacillus are not influenced by the Roentgen rays; they are as virulent after sixty-four hours' exposure as before such treatment. S. S. B.

Loeffler's Solution.

Loeffler's solution in the treatment of diphtheria (*Med. Summary*). The solution consists of:

Alcohol	60 parts.
Toluol	36 parts.
Liq. ferri perchloride	4 parts.

For the relief of pain menthol may be added. The infected patches are to be swabbed with this every two to four hours.

Throat Examination in Children.

Dr. J. D. Milligan (*Med. Record*) teaches his young patients to use their index finger as a tongue depressor. He claims that the child will readily consent to this method of procedure, and that after a few trials they will learn to put the end of the finger near the base of the tongue, so that a good view of the fauces can be obtained.

Ozone in Cancer of the Larynx.

Sir John E. Millaise, the celebrated painter, was almost entirely relieved of the terrible distress, attendant upon the latter stages of his malady (*N. Y. Med. Times*) by the use of ozone. The gas was conducted from a reservoir direct to the tracheotomy tube. It kept him alive and free from pain during the last three months, and also prevented the odor usual to cancer. Practically, no narcotics were used.

Mirror Speech.

Dr. Grasset (*Progress Médicales*, Dec. 5, 1896; *Journal of Am. Med. Assoc.*, Jan. 2, 1897) reports the case of a woman affected with hysteria major, and since insane, who reversed the letters of entire words, pronouncing them as if spelled backwards, with absolutely amusing rapidity and correctness. W. S.

Division of the Cervical Sympathetic Nerve in Cases of Exophthalmic Goitre.

Dr. Jaboulay has practiced division of the cervical sympathetic nerve in two cases of exophthalmic goitre, with resulting diminution in the prominence of the eyes. (*Lyon Médical*, 1896; *Medical News*, Oct. 17, 1896). Both nerves must be divided, but the result is not always symmetric, as one of the nerves may be larger than the other and thus capable of more pronounced activity.

The operation is believed to be justifiable in accordance with the intensity of the symptom. W. S.

Hæmorrhage From Foreign Body Lodged in The Œsophagus.

At a meeting of the Society of Physicians, Vienna, December 4th, 1896, Hochenegg showed a patient upon whom he had operated (*Med. News*). The hasty swallowing of large mouthfuls of food give rise to intense pain. No foreign body could be detected by the sound, and it was inferred that the œsophagus had been lacerated. Several serious hematemeses occurred, and a swelling appeared in the left side of the neck below the thyroid. The abscess was opened, and a piece of chicken bone, which had pierced the œsophageal wall, was removed. The ulceration had eroded the wall of a dilated vein and so produced the bleeding. Hæmorrhage from a foreign body in the œsophagus is undoubtedly rare. In 180 cases it occurred but ten times. Of these cases, but one was saved. It usually appeared after the sixth day, consequently was due to ulceration. The author states that one cannot rely upon the sound, but adds that the œsophagoscope is of considerable value in arriving at a diagnosis. M. D. L.

OTOLOGICAL.

Treatment of Labyrinthine Vertigo.

"Labyrinthine vertigo is easily confounded with that due to disease of the nervous system (Gellé in *Annalés des Mal. de l' Orielle*, etc.). The former frequently succeeds to lesions of the middle ear, but not less often may be associated with cerebro-spinal or mental affections. In the first case the labyrinth is forgotten, the attention being fixed upon the middle ear; in the second case all is attributed to the encephalon, or to cerebral troubles, and the same mistake is made.

"The labyrinthine origin of the disturbances of movement and of equilibrium is anatomically explained by the intimate connection of the vestibulary and ampullary nerves with the cerebellum and its peduncles."

Gellé adds a clinical observation, frequently made, that working upon the ear, the use of Politzer's bag, etc., produced vertigo.

Labyrinthian vertigo presents two characteristics:

1. It is constituted by motor disturbances analogous to those seen in experiments upon animals.

2. It is also composed of sensorial, circulatory, vaso-motor and sensitive disturbances, producing various hallucinations and sensations.

1. *General Treatment.*—The patient must be protected from falling; should not be alone out-doors, as noise of carriages in the streets might bring on an attack; the aura, frequently observed, will serve to warn the patient. The vomiting should be foreseen; a few swallows of chloroform water with orange-flower water, several drops of ether or amyl nitrite placed under the nose, fresh water upon the face — all may be employed to abort or relieve an attack. If vomiting continues, Riviere's potion, a little ice or iced champagne, and rest in bed is recommended.

2. *Treatment of Vertigo Due to Concussion and Compression in Middle-Ear Affections.*—Diseases of the tympanum produce the greatest number of the lesions which render possible the concussion and compression of the labyrinthine nerve. The conditions predisposing to this form of vertigo are: polypi of the tympanum or canal, retention of intra-tympanic exudations, ankylosis of the ossicle, adhesion of the stapes, obliteration of the round window, etc. In these conditions the slightest vascular congestion, reflex spasm of the tensor, the action of chewing or blowing the nose, insufflation of air by the tube, centripetal pressure, rarefaction, may cause the various vertiginous symptoms.

Artificial aeration of the tympanum, and rarefaction, tend to re-

establish the normal tensions and to free the labyrinthine pressure. Also the surgical measures indicated: removal of the membrana-tympani and ossicles, disengaging the round and oval windows, cutting the tendons of the stapedius and tensor tymp., etc. Symptomatic therapeutics should not be neglected.

3. *Treatment of Vertigo Connected with Labyrinthine Hæmorrhage.*—The internal ear is susceptible of being altered by various intra-labyrinthine processes. These are primary or secondary to affections of the tympanum or petrous bone, or of the meninges and the encephalon.

Among the intra-labyrinthine lesions, labyrinthine hemorrhage stands first. The picture is readily recognized: sudden deafness and vertigo, whistling noises—all occurring in a few hours or days.

Hypodermic injections of ergotine to arrest the hæmorrhagic effusion; milk, and laxatives; local treatment is generally abandoned. In addition, Gellé advises large incisions of the membrana-tympani to aerate the tympanum, and the application of blisters or the actual cautery upon the mastoid region and nape of the neck. Pilocarpine in hypodermic injections with the iodides, and even the mercurials, hasten resolution. Two months of treatment are necessary.

4. *Treatment of Vertigo Complicated with Labyrinth Congestion.*—Gellé differentiates labyrinthine hemorrhage from labyrinth congestion. Clinically this is a very delicate diagnosis. The progress of the disease is the main point in the differentiation.

The same therapeutics in such cases should be employed. In addition, active congestions should be treated as acute inflammations.

5. *Treatment of Vertigo Caused by Anæmia of the Labyrinth.*—The trio of symptoms of labyrinthine affections — vertigo, subjective noises and deafness — are also observed in anæmic conditions of the internal ear; in syncope the preludes are auricular.

With deaf patients, flooding, diarrhœa, maladies from lack of general nutrition, cause an anæmia which increases the deafness and renders it total if it was partial. Repeated pregnancies, prolonged lactation, canvalescence from protracted illness, albuminuria, cachectic affections, and other conditions of weakening of the circulation, cause labyrinthine vertigo of an anæmic character.

In this subdivision of vertigo, the reconstructives, iron, glycerophosphates, a tonic regimen, repose, change of scene, milk diet, iodides, etc., are indicated.

6. *Treatment of Vertigo from Labyrinthitis.* — Fever, delirium, vertigo, deafness, and paresis of the inferior members occur, with persistent deafness. This is a clinical description of labyrinthitis.

As hereditary, as well as acquired, syphilis is frequent an etiological factor in acute inflammations of the labyrinth, the iodides and specific treatment should be given a good trial. Gellé states that he would not hesitate to perform paracentesis of both drum-heads, and prescribe calomel and the revulsives, as if the affection were located in the middle ear. Quinine sulphate is still the greatest resource in persistent vertigo following these diseases of the internal ear.

7. *Treatment of Vertigo with Labyrinthine Hyperæsthesia.*—Under this sub-division, abnormal sensibility to noise, painful hearing, aversion to music, etc., are classed. Examination often reveals an old aural lesion, sclerosis, with or without adhesion, ankylosis, caries dating from infancy, etc.

Quinine sulphate is here the symptomatic medication par excellence. It should be given, by Charcot's method, persistently, by series of ten days, separated by rest, 0.60 centigr. daily, gradually raised to 1 gramme as renewed. Complaints of the patient need not be considered.

8. *Treatment of Reflex Labyrinthine Vertigo.*—The internal ear is the point of departure of reflex motor phenomena, either for binauricular accommodation or for audition.

Reflex vertigo may be observed with or without lesions of the ear. It is clinically indisputable that affections of the stomach—dyspepsia, uterine affections, hæmorrhoids, pulmonary maladies, great sorrow, prolonged suffering—all have the power of arousing vertiginous crises, even in the absence of any predisposing otitic lesions.

Of course, treatment of such conditions is to be directed to the original exciting factor or organ.—*Annals Oph. and Ot.*

BOOK REVIEWS.

Autoscopy of the Larynx and the Trachea.—(Direct Examination Without Mirror). By Alfred Kirstein, M.D., Berlin. Authorized Translation (Altered, Enlarged, and Revised by the Author) by Max Thorner, A.M., M.D., Cincinnati, O. With Twelve Illustrations. One Volume, Crown Octavo, pages xi-68. [The F. A. Davis Co., Publishers, Philadelphia, New York and Chicago. Price, 75 cents.

Considerable interest has been aroused in laryngological circles by the presentation of this new method of examination of the larynx, and if hopes are realized it will certainly be an important contribution to laryngology.

Through the activity and work of Dr. Max Thorner, of Cincinnati, this method, first suggested by Kirstein, is presented for the

consideration of our American colleagues in the little volume now before us.

The well-printed, 68-page book gives the details of the method, with illustrations of the apparatus used, position of the patient, technique, etc.

We await the verdict regarding the practicability of this method with much interest.

Medical Bulletin Visiting List, or Physician's Call-Record.—In three styles and sizes. Leather-bound, with flap and pencil. [Published by the F. A. Davis Co., Philadelphia. Price, No. 1, $1.25; No. 2, $1.50; No. 3, $1.75.

The special feature of this excellent and handy visiting list is the arrangement of the blanks for the recording of visits; by means of a simple device consisting of stub and half-leaf insertions, it is necessary to write each patient's name only once per month; the blanks are made into removable sections, and are interchangeable; this is a labor-saving, practical idea, and makes this a very useful companion to the physician.

The Effects and Local Manifestations of Syphilis in the Upper Air-Passages.—(*Die Wirkungen der Syphilis in den Oberen Luftwegen und ihre örtlichen Erscheinungen*). By Dr. E. Fink. [Halle: Karl Marhold, 1896. Price, 50 cents.

This monograph of 60 pages, one of a series of practical essays on laryngological topics, edited by Dr. M. Bresgen, will be of great interest to the specialist and general practitioner alike. It is evidently written from this standpoint, and shows not only that the author is fully conversant with the literature of the subject, but that he has also an extensive personal experience with the topic under consideration.

After a short and interesting historical introduction, he treats systematically, in three chapters, of the primary, secondary, and tertiary manifestations of syphilis in the nose, pharynx and larynx, giving a detailed account of the symptoms, differential diagnosis and treatment of the affection. His descriptions are concise, but lucid, and his views are those held at present by the most advanced laryngologists and syphilologists. The booklet will repay reading. M. T.

ANNOUNCEMENT.—E. B. Treat, publisher, New York, has in press, for issuance early in 1897, the *International Medical Annual*, being the fifteenth yearly issue of that well-known one-volume reference work. The prospectus shows that the volume will be the result of the labors of upwards of forty physicians and surgeons of international reputation, and will present the world's progress in medical science.

The publisher states that the kind reception accorded to the *Medical Annual* has rendered it possible for him to spare no expense in its production, while the editorial staff have devoted a large amount of time and labor in so condensing the literary matter as to confine the volume within a reasonable size without omitting facts of practical importance.

The value of the work will be greatly enhanced by the thoroughness of illustration; both colored plates and photographic reproductions in black and white will be used wherever helpful in elucidating the text.

"To those who need the condensed and well-arranged presentation of the medical advances of the past year—and this class must necessarily include all physicians—we heartily commend the *International Medical Annual.*

"The volume will contain about 700 pages. The price will be the same as heretofore, $2.75. Full descriptive circular will be sent upon application to the publisher."

"Anomalies and Curiosities of Medicine," being an encyclopedic collection of rare and extraordinary cases, and of the most striking instances of abnormality in all branches of medicine and surgery, derived from an exhaustive research of medical literature from its origin to the present day, abstracted, classified, annotated, and indexed. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D. Forming one handsome imperial octavo volume of 968 pages, with 295 illustrations in the text, and 12 half-tone and colored plates. Sold by subscription. Address the publisher. [Philadelphia: W. B. Saunders, 925 Walnut street. Price, cloth, $6; half-morocco, $7. This book will be ready for delivery in February. It promises to be very interesting and valuable, as it will be the only such reference book so far published.

MISCELLANEOUS NOTES.

Tri-State Medical Society.

The Fifth Annual Meeting of The Tri-State Medical Society of Iowa, Illinois and Missouri, will meet in St Louis, April 6th, 7th and 8th, 1897. A large number of valuable papers will be read. Dr. Joseph Price, of Philadelphia, will hold the Surgical Clinic; Dr. James T. Whittaker, of Cincinnati, the Medical Clinic; and Dr. Dudley Reynolds, Ophthalmic Clinic. Dr. G. Frank Lydston, of Chicago, will entertain the members with an original story during one of the evening sessions. The officers are:

A. H. Cordier, M.D., Pres't, Rialto Bldg., Kansas City.
Hugh T. Patrick, M.D., 1st Vice-Pres't, Chicago.
H. C. Eschbach, M.D., 2nd Vice-Pres't, Albia, Ia.
G. W. Cale, M.D., Sec'y, 4403 Washington Boulevard, St. Louis.
C. S. Chase, M.D., Treas., Waterloo, Iowa.

The preliminary program will be published in next issue.

Dr. H. V. Wurdemann has removed from 805 Grand Avenue to Suites 40 and 41 Pierce Building, No. 128 Wisconsin St., Milwaukee.

To Isolate Consumptives.

The New York Health Board has passed an amendment to the sanitary code, declaring pulmonary tuberculosis to be an infectious and communicable disease, and requiring physicians to report all cases coming under their observation.

The board proposes to treat consumption in the same manner as cases of other contagious or infectious diseases of a mild nature. Isolation will be ordered if the circumstances require such a course.

New Definition for a Pharmacist.

In a recent trial in California, in which a pharmacist was charged with practicing medicine without a license, according to the *Pacific Med. Journal*, the counsel for defendent stated "that a pharmacist is one who administers medicine, as a rule, more acurately than the physician, and does not charge as much for doing it." The jury did not see it that way—guilty.

Dr. J. W. Sherer, of Philadelphia, will be associated with Dr. Würdemann after January, 1897.

Dr. C. W. Root, who has been with Dr. Würdemann for two years, has gone to Philadelphia.

The New York Polyclinic building was completely destroyed by fire on the morning of December 25th, 1896. Arrangements have been made for continuing the lectures and clinics in other quarters.

Dr. Dunbar Roy was married December 16th, 1896, at Richmond, Va., to Miss Carrie Ellis. We tender our congratulations.

Dr. W. K. Simpson has been appointed surgeon to the Throat Department of the New York Eye and Ear Infirmary.

The American Laryngological, Rhinological and Otological Society (Southern Section).

The meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society will be held at the New St. Charles Hotel, New Orleans, March 3, 1897, the session to commence at 10 A. M.

Members intending to present papers or desiring to have them read by title, and who have not yet sent the titles of their communications, are requested to do so at once, so as not to delay the preparation of the program. Members intending to be present at the meeting will please forward their names at least two weeks before the date of the meeting, so that the question of club privileges and opportunities for permitting visiting members to take part in the Mardi-Gras Carnival festivities may be arranged by the Reception Committee.

W. SCHEPPEGRELL, M.D.,
Chairman South. Sect. Am. L. R. O. Society.

The programme of this society will be announced in the March issue of THE LARYNGOSCOPE, and a synopsis of the proceedings, with many of the most interesting papers in full, will be given in the April issue.

SYR. HYPOPHOS. CO., FELLOWS

Contains the Essential Elements of the Animal Organization,—Potash and Lime;

The Oxidising Agents—Iron and Manganese,

The Tonics—Quinine and Strychnine;

And the Vitalizing Constituent—Phosphorus; the whole combined in the form of a Syrup with a **Slightly Alkaline Reaction.**

It Differs in its Effects from all Analogous Preparations; and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

It has Gained a Wide Reputation, particularly in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

Its Curative Power is largely attributable to its stimulant, tonic, and nutritive properties, by means of which the energy of the system is recruited.

Its Action is Prompt; it stimulates the appetite and the digestion, it promotes assimilation, and it enters directly into the circulation with the food products.

The prescribed dose produces a feeling of buoyancy, and removes depression and melancholy; *hence the preparation is of great value in the treatment of mental and nervous affections.* From the fact, also, that it exerts a double tonic influence, and induces a healthy flow of the secretions, its use is indicated in a wide range of diseases.

NOTICE — CAUTION.

The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, ***finds that no two of them are identical,*** and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, ***in the property of retaining the strychnine in solution,*** and in the medicinal effects.

As these cheap and inefficient substitutes are frequently dispensed instead of the genuine preparation, physicians are earnestly requested, when prescribing the Syrup, to write "Syr. Hypophos. ***Fellows.***"

As a further precaution, it is advisable that the Syrup should be ordered in the original bottles; the distinguishing marks which the bottles (and the wrappers surrounding them) bear, can then be examined, and the genuineness—or otherwise—of the contents thereby proved.

Medical Letters may be addressed to:

Mr. FELLOWS, 48 Vesey Street, New York.